

The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 1509.—VOL. XXXIV.

London, Saturday, July 23, 1864.

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July 22, 1864.

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Chiverton, 23½. Great Rose, 22½.

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Great Laxey, 15½. Wheal Vlor.

Chiverton Moor, 21½. Wheal Seton, £25.

Marke Valley, 25½. Wheal Grenville, £7½.

East Grenville, 25½. Wheal Grylls (20s. paid), £10.

West Rosewarne, 23 3s. 9d. North Robert, 6s. 6d.

North Lovell, 14¾. North Treasery, 23s. 9d.

East Lovell, 14¾. East Carn Brea, 27½.

East Cardon, 25½. Great Wheal Rose, 27½.

Great No. Downs, 25½. Wheal Grylls, £13.

Great Wheal Rose, 27½. Wheal Grylls, £13.

Great Wheal Fortune, 21s. 6d. Wheal Seton, £25.

Original Correspondence.

MINING SHARES INVESTMENT COMPANY.

SIR.—As a paragraph in last week's Journal contains some statements relative to the Mining Shares Investment Company which may mislead your readers, we beg to correct them by stating that the directors of the company have no intention of introducing the enterprise to the public market for several months to come; nor is the private subscription list closed, nor the capital all subscribed. The objects of the company can be best attained by proceeding gradually, purchasing such shares as are most suitable, as the capital is subscribed. JOHN TAYLOR AND SONS.

6, Queen-street-place, London, July 21.

LIMITED LIABILITY COLLIERIES COMPANIES.

SIR.—Capitalists who have money to invest complain (and that most justly) that collieries under the above Act have in this country been almost universally unsuccessful, and the capital invested in them thrown away, whilst many private individuals, with little or no capital, make in the adjoining collieries handsome fortunes; consequently, the question frequently arises—how is it our company fails to give us a dividend, while our neighbours are making their fortunes from the same valuable seams of coal, and with no apparent advantage over ourselves? In the leading article of last week, on the Llantrisant Colliery Company (Limited), some valuable information was given as to the real cause of such failures, and until such companies adopt, as recommended, a better system of management, there will never be a dividend for the unfortunate shareholders. I can excuse London gentlemen for not understanding the intricacies of colliery management, and their being so easily misled by the incompetent hands which they too frequently fall in with as colliery managers, but this would all be remedied were they in the first place to engage the services of some eminent mining engineer of the district as consulting engineer, who would be better able to judge of the capabilities of a manager, and find them, no doubt, such a man as would, with a little capital, and a field of coal similar to their neighbours, who are making fortunes, soon return a satisfactory dividend for the shareholders. This is all that is required in a good coal, to insure the successful working of colliery companies, and directors of such companies would do well to follow this advice, and should they then be unsuccessful they will know the reason why, and be able to explain the same to individuals who may have invested their capital in the undertaking. But when I see a number of gentlemen directors of a colliery company engage a *mine captain* to manage their colliery, I am not at all surprised that neither he or they can explain the why and the wherefore the colliery does not enter the Dividend List, and I very much pity unfortunate individuals who invest their capital with such people.

Aberdare, July 13.

COLLIERY MANAGER.

PEAT AS A STEAM FUEL.

SIR.—It is now more than three years since you described a process of treating peat invented by Mr. Hodgson, and, although I do not hear that the inventor has done much with his invention beyond employing it himself, it seems that he has now obtained results which are likely to secure its general adoption wherever peat bogs are found. It has been proved that even burnt in an ordinary coal grate, which is certainly not adapted to the most economic burning of peat, peat prepared by Mr. Hodgson's process may be advantageously used wherever it can be sold at a price not two-thirds that of coal; in many parts of Ireland it could be sold at about one-third the price of coal. After a series of very careful observations, Messrs. Cotton and Anderson find that the value of the patent fuel may be taken as at least 60 per cent. of that of Whitehaven or Wigan coal. The very natural remark that it is well known that every kind of fuel, and even every variety of one kind, requires an arrangement of grate and furnace peculiar to itself, in order to give the best results. Hitherto, however, compressed peat has been burned in grates adapted to coal; and experiments under such circumstances will only indicate the lowest duty that may be expected. By the kind permission of Messrs. Findlater and Co., and Messrs. A. Todd and Co., we have been enabled to make two very fair experiments. On January 25, 1864, one of the coppers in Messrs. Findlater's brewery was boiled in the usual manner with a consumption of 37½ cwts. of peat; and on Jan. 28 the same copper was worked by means of 21½ cwts. of Whitehaven coal, making the value of the peat 56·6 per cent. of the coal. On January 26 Messrs. Todd's flour-mill was worked 29 hours, at an expenditure of 9 tons of peat; and on January 29 the mill was worked for the same time with a consumption of 5½ tons of Wigan coal, making the value of the peat 61·1 per cent. When the boiler power is ample, no difficulty is experienced in using peat in coal-burning furnaces, and the labour of firing is very little greater than with coal; for although the fuel has to be thrown in a little more frequently, there is no occasion to rake or clear the fires, as no clinker is formed, and the fire-bars, consequently, do not wear out. The importance already referred to of treating fuel in accordance with its peculiar nature was strikingly exhibited in some very careful experiments made in May, 1862, at Messrs. Courtney, Stephens, and Co.'s works. It was found that a boiler which evaporated 7·2 lbs. of water per 1 lb. of Welsh steam coal boiled off 3·15 lbs. of water per 1 lb. of compressed peat, where the latter was treated as coal; and 3·89 lbs. of water where the fuel was allowed to burn without being disturbed, or in other words, by burning the peat in a manner suited to its nature, 4 tons did the same amount of work as 5 tons when treated and stirred like coal.

The price at which Mr. Hodgson produces his fuel is considerably below that at which peat fuel has been produced by any other process, and it can be produced in large quantities. The production during the month of January last was at the rate of 84 tons per week, and that the cost of the patent fuel at the works was 6s. 4d. per ton. They estimate that, if the establishment be enlarged to produce 400 tons per week, the cost of production can be reduced to 3s. 11d., exclusive of royalty. At present the fuel is loaded directly from the store into boats capable of carrying about 10 tons each, drawing 2 ft. of water. These boats are towed down a small canal from the works to the River Figile, and are then guided down the stream to the landing place, near the aqueduct. The cargo, which is in bulk, is then transferred by sacks full to the regular canal boats, if intended for the Dublin market, or the Great Southern and Western Railway if for stations along the line. The process of manufacturing is very simple, rapid, and apparently inexpensive. The bog is first thoroughly drained by deep ditches, intersecting each other at intervals of about 60 yards. The upper surface of heather and loose sod is then removed, and the compact bog, thus laid bare, is scarified all over by light harrows drawn by men; the loosened surface, which dries very rapidly, is scraped off, and collected into heaps, and the harrowing is resumed. The operation in fine weather is performed twice a day, and the peat thus collected is found not to reabsorb moisture, although exposed to the weather. During the two or three hours that the loosened surface remains on the bog, if the weather be fine, it loses about 40 or 50 per cent. of its moisture. The partly dried turf or "mull" is brought from the bog in wagons running on light rails. Having arrived at the works, it is thrown into an inclined revolving riddle, which deposits the finer portions on the drying tables or plates; the coarser portions fall out at the lower end, and are ground fine in a mill. This is the only place at which the turf has again to be handled; but, in the proposed new arrangement of the works, this defect will be obviated, and the mill arranged to act automatically.

The drying tables consist of four sets of plates 250 ft. long, about 8 ft. 8 in. wide; three-fourths of these are heated by the waste steam of the engines, and one-fourth by the flue of the boiler, the hot smoke of which is blown in by a fan. The advantage of this arrangement, in an economical point of view, is apparent. The mull is moved along over the heated tables by means of two pairs of endless chains, having iron rakes secured to them at intervals of 6 feet. The upper part of the chain carries the mull 250 feet along the upper table, and pushes it down to the lower plates, along which it is brought back by the lower half of the chain, performing the entire 500 ft. in about an hour. It then passes out in a state sufficiently dry for the pressing machine, and is conveyed by revolving buckets into a loft, from which it is let down by a shoot into the machine. This is a simple and ingenious apparatus. It consists of a tube about 5 feet long and 3½ feet in diameter, into one end of which works an iron ram, making 60 strokes per minute, and at each stroke forming a cake of fuel. The resistance to the pressure of the ram is supplied by the friction of the cakes passing through the tube, from which they issue, at a considerable temperature, in the form of a solid cylinder, and are conveyed by a wooden shoot, about 300 ft. long, direct either into the canal boat or the store: this tube is an essential feature in the manufacture, as the solidity and durability of the fuel depend in a great degree on its cooling under pressure. As the end of this solid cylinder of peat passes into the window of the store, propelled forward about 1½ in. by every blow of the ram, a cake is detached and falls down. The

whole process of manufacture, from the time the mull is thrown into the riddle till the compressed fuel drops into the boat or store, occupies from three to four hours, and from what I have seen of the process, I believe that ultimately the work will be accomplished in even less time than that.

From this I think it will be admitted that Mr. Hodgson has done more towards utilising our immense peat bogs than anyone that has preceded him, and I trust the time is not far distant when peat will be in general use, not only as a steam fuel, but, also, as a fuel for smelting purposes.

Dublin, July 16.

H. D.

wholey dependent for their living and instruction on what they learn during the time they are engaged at school and in the mines. After they have passed through the practical and schooling portions, let them be placed in districts to work and survey mines, say for one year, and then change them; they then report on every mine in the district, particularising all that had produced large deposits of ore, and stating the size, the bearing and dip of the lodes, and their opinion as to what caused the veins to form at the point where found. If anything is apparently out of place about it, let the men of the mines in the district, with liberty for any practical man to reply, then we should gather facts. Lastly, let all their remarks be returned to the Government School, to be analysed and placed on record. This would lead to the development of Nature's laws, without which England will never possess a staff of efficient miners.

N. Eason.

COAL-CUTTING MACHINE PATENTS.

SIR.—Having carefully read the comments upon the case of Firth against Ridley, in the Journal of July 2, and Mr. Ridley's reply to it, in which he expresses the hope that in any future agreement there may be more mutuality and consideration, I take the opportunity of asking in what part of the agreement Mr. Ridley considers there was want of mutuality, except in that which rendered the West Ardsley representatives liable for all outlay, expenses, and loss, whilst Messrs. Ridley and Rothery were to share in profits only? I am inclined to think that if a joint-stock company were formed, which would undertake to develop the inventions of poor inventors upon condition that the company should bear all risk, and give the inventor 15 per cent. of the net profits, they would be flooded with the best inventions in the country; and that not one inventor in 100 would object to guarantee them the use of such improvements, made by the said inventor, which they might choose to work upon the same terms.

From what I have seen, none of the machines yet constructed work properly, and much more outlay and experiment will be necessary to make them practically useful, so that colliery owners, whether in England or on the Continent, would do well if they wait for a year or so, until the relative merits of the several machines, which will by that time have been practically tested, shall have been ascertained. As some time has now elapsed since it was reported that Mr. J. A. D. Heidmann (who now writes in favour of the Ridley and Jones machine) patented that invention in Germany, without, as it is stated, even asking the authority of the inventors, perhaps Mr. Heidmann will state in what German colliery it is at present in use, and what results have been obtained. For my part, I do not believe that the trunk engine possesses any advantage whatever over the ordinary high-pressure engine, except that the machine is shorter than the original, an end which could be readily obtained by other means. Since in England, where colliery labour is worth 4s. per day, the economy of machine-cutting is extremely questionable, I cannot understand what advantage it could possibly be in Germany, where 1s. to 1s. 6d. per day is as much as the collier hopes for, and where the seams are much less adapted to machine-cutting. The only gratifying feature in connection with the transaction is the supposition that a German has brought back a trifle of money to England, as heretofore the direction of cash movements in connection with mining has always been from England to Germany, not one penny of profit ever having been realised by Englishmen from Anglo-German mining companies; whilst, with respect to German mines altogether (excepting, perhaps, half-a-dozen mines), the profits realised are no larger than could be obtained in England without risk by investments in Consols. In England, on the contrary, the average of profits (taking all mines, good and bad) reaches nearly 8 per cent., or nearly thrice that of German mines.—Durham, July 20.

H. T. J.

THE GIANT STONE-BREAKER.

SIR.—Seeing a letter in the Journal of July 9, on this subject, will you kindly allow me space to reply, and to correct a few inaccuracies therein. Your correspondent, "Copper Miner," begins by saying that—"Just as Blake's machine is becoming recognised a colourable imitation is patented," and again—"Another patentee comes in and closely imitates the machine;" also—"The sole difference between Blake's machine and that patented by Mr. Pope, of Bristol, is that toggles are used to force forward the movable jaw in the original machine, and an eccentric in the imitation. Now, it would have been better if "Copper Miner" had enquired the difference between the two machines before he had appeared in print. If he had purchased the two specifications he would have found that not even in outward appearance are they alike; and as to the mechanical parts that are patented in Blake's, there is not one used in mine. The movable jaw in Blake's is moved by a crank, connecting-rod, lever, upright, and two toggle-plates; and the jaw works on a bearing at bottom. Instead of my invention being a colourable imitation, it is as different as dark and light, being worked by a much simpler means—an eccentric fastened on a revolving shaft, and working against an anti-friction roller at the back of the jaw, and the jaw working on a spindle at top. It will, therefore, be seen that the points of friction are reduced about one-half. And I deny that the eccentric is more liable to get out of order, as it is cast in a chill on its wearing face. If it is more expensive in its manufacture, I can sell them 30 per cent. cheaper than the price charged for Blake's of the same size. As to the desirability of patents, I shall leave that to be discussed by able men, and those with more leisure.

W. POPE.

Bristol, July 18.

ENGLAND'S MINING SCHOOL—No. I.

SIR.—It is gratifying to intellectual men to see recorded in nearly every day's paper a visit by the Prince and Princess to some public institution, or place got up for the benefit of the public. There is very little doubt that they are the right people in the right place; they set about accomplishing work that all wise princes should attend to—in fact, they are doing their duty, by aiding the hardest working and most intellectual people on the earth—people that always have, and still are, prying into Nature's secrets in every clime—a people who have apparently climbed to the summit of greatness: still they must persevere, as there is nothing at a standstill. We are on a floating world, with not a single instance known of bounds being set to man's accomplishments. Davy may be said to have opened the field-gate to chemistry: a second man entered, a third man goes further, and the further each man goes only proves that a greater amount of work must be accomplished before we shall even know the rudiments of the science; therefore, perseverance should ever be man's motto. Kings and princes should stand forth as guides to progress, as they must be aware it is the true system by which to gain the affections of their people; its engines to guide them to prosperity, and prosperity keeps unity in a kingdom; consequently wise kings and princes are now visiting places and institutions that their predecessors would have scorned to look at.

I observed with pleasure your remarks respecting the visit of the Prince and Princess to the Mining School in Jermyn-street, when the whole staff mustered to show its contents and explain its progress to their Royal Highnesses. I am sure it was well worthy their attention, for there, I say, are deposited the gems of England's wealth and glory; I might almost say shut up in obscurity, for if one looks at the visitors' book it will be seen that it is visited only by the few, which appears strange to those who know (and the majority of England's inhabitants ought to know) that these gems are England's life-strings. They sowed the first seeds of science, they stimulated the mind of man to obtain them, and ultimately carried him to such a height as to enable him to accomplish wonderful works—such as the stupendous vessels ploughing the ocean, the bridges that span it, the locomotive, the telegraph that conveys man's thoughts to the furthest parts of the earth, almost as quickly as he can repeat them, and the gas-light which lightens our darkness; in fact, all works, of whatever magnitude, even to the most minute thing in the lady's toilet, none of which could be accomplished without the agency of the mineral kingdom. If it were not for these beautiful metallic substances the people to this day would be clad in the garb of the South Sea Islanders; but England now stands in such a position as a nation as the sun never before shone upon.

I have before mentioned, through the medium of the Journal, the apparent inattention paid to this valuable collection of minerals by the people of England; but when they are called on to take a common-sense view of it, the grave, as well as the gay, are bound to admit that it is the origin of all their glory.

If England were only an agricultural nation, I need not say what would have been her present position, as we can easily see that by observing how the inhabitants of every agricultural nation in the world have to toil hard, and sell all the best of their produce, to obtain what England manufactures. They are never in a position to maintain a sufficient population, being 100 years behind the age they live in. Under these circumstances, I say, it becomes the bounden duty of every king, queen, prince, or ruler of Great Britain to watch diligently her mineral resources, and to come forward and aid science in developing Nature's laws.

England has a world-wide fame for her mineral resources, and every nation on the earth knows it is that, and that only, which has carried her to the top of the tree. I ask who did it? Was it not the hard-working miner? But notwithstanding England's dependence on her mineral productions, no king or prince will within the last half century, ever aided him by founding a single school for his instruction; they left him to grope his way through the dark abysses of the earth as best he could, when every other branch had either pecuniary assistance or schools for its instruction. This appears to me to have been short-sightedness on the part of past kings and rulers. I boldly say that the earth's laws, even to this day, are not developed. The working miner, through watchfulness, has discovered a few of her laws, but no record is kept of them, and every man has again to learn them for himself from Nature's book, as he daily progresses through the earth; still he has learnt enough to convince him that the whole of the earth is daily undergoing changes, and working under its own natural laws.

I may here remark that I have had nearly sixty years' experience, having gone into the mines at eight years of age, had the management of a mine before I was twenty, and have surveyed as many, if not more, than any man in the world, and I have ever kept a watchful eye on Nature's laws, and I say that the knowledge of those laws is, even now, to the practical man, in its infancy. I admit a few valuable facts on Nature's laws have come out within the last fifty years, but the majority are still hidden in obscurity. What is wanted is that a selected portion of the practical youths of this country should be well schooled until they arrived at the age of manhood, and not left

they are engaged at school and in the mines. After they have passed through the practical and schooling portions, let them be placed in districts to work and survey mines, say for one year, and then change them; they then report on every mine in the district, particularising all that had produced large deposits of ore, and stating the size, the bearing and dip of the lodes, and their opinion as to what caused the veins to form at the point where found. If anything is apparently out of place about it, let the men of the mines in the district, with liberty for any practical man to reply, then we should gather facts. Lastly, let all their remarks be returned to the Government School, to be analysed and placed on record. This would lead to the development of Nature's laws, without which England will never possess a staff of efficient miners.

N. Eason.

THE FORMATION OF GRANITE.

SIR.—I did not until this week notice the remark of Mr. Jones, and, had I done so, should not have attended to it until he had shown he had some practical experience in underground mining, and where he has seen granite—for I seldom or ever read the works of mere theoretical men on geology, believing it to be a waste of valuable time. Their writings only tend to mislead children, and present a stumbling-block to the young geological student—say, for want of practical experience, they do not understand a single law of Nature as to rock or mineral formations. Practical men have learned a few of Nature's immutable laws, and had Mr. Jones convinced me that his views on rocks and mineral formations were grounded on practice I should most likely then have met him; but, judging from his remarks, I should put him down as a theorist only. Surely, Mr. Jones cannot induce in the idea that the separation of silver from lead has any analogy to the world's formation; if so, he ought to have answered my remarks as to how native copper, silver, and quartz become formed in one mass, yet all in distinct globules, the quartz six-sided, the native copper forming the bed or matrix. He should also have shown in what way he accounts for Dr. Percy's remark, where he says silica in granite has never yet been melted. Had Mr. Jones favoured me with his ideas on these questions, I should probably have replied thereto. As it stands, however, he had better refer to my former letters, or have patience till my present letter is out, wherein I think he will find quite enough to enlighten his mind and occupy his hours for some time to come.

N. Eason.

WHEEL COLENCO.

SIR.—In last week's Journal is the following paragraph:—

WHEEL COLENCO.—Allow me space to correct an erroneous statement made in the Journal of July 2, wherein it is asserted that large masses of rich grey copper ore have been met with at a less depth than 10 fms. from surface. I fear this is only done to deceive the public, as I have made strict enquiry, and no such discovery has been made.—E. H.: Goldsithney, July 13.

I much regret you have not furnished me with the name of your correspondent, "E. H.," which I must request that you do, that the truthfulness of his statement may be tested, and that he may be shown to the world as the author of a malicious falsehood, and duly punished. Permit me to say that the mine has been inspected by Capt. Henry James, of Redruth, Capt. Thomas Gill, of Wheal Vor, Capt. George Tremayne, of Wheal Rose, Capt. John Skewis, of Wheal Grylls, and Mr. John Kendall, of Redruth, who attended (except Capt. Skewis) the first meeting of the company, each and all of whom will testify not only that "large masses of rich grey copper ore have been met with at a less depth than 10 fms. from surface," but that "many tons of rich grey copper ore are now and have for weeks been lying near the surface, open to the inspection of any person desirous of making himself acquainted with the facts connected with one of the most important discoveries made in the Marazion district for many years, the ledge being from 3 to 4 ft. wide, a splendid gossan ledge, in a most congenial metalliferous clay slate, containing 'very large masses of grey copper ore,' and worth at places from 20/- to 30/- per fathom, at a depth of 12 fms. from surface."

Capt. Henry Skewis took an average stone from the pile of grey ore lying at the Colenso sample—Produce, 20¾.—JOHN ANGOVE.

Mr. Gilbert, assayer, at my request, himself took from the pile of grey ore lying at surface a sample, and the following is his assay for copper:—Marazion, July 18, 1864: "Colenso Mine sample assayed—Produce, 22½."—JAMES GILBERT. "A sample I took from the mine."

THE CORNUBIA TIN MINE.

SIR.—I am glad to see, through the Journal, that the company still intend to prosecute this mine. The returns for some time have been from 3 to 4 tons of tin per month, perhaps a little more. I am told that the mine about pays its costs in working on such a limited scale. I should state that the deepest level is 70 fathoms from surface, there being no adit; in the last working the mine was sunk to the 60 fathom level, so you will see in this working only 10 fathoms have been sunk, and as the former company took away all the best the ground as deep as the 60 fm. level, and the present company has nothing but refuse ground at and above the 60, and only one level in virgin ground, and raising 4 tons of tin per month, is it not reasonable, if this mine were sunk three fathoms deeper—to the 100 fm. level—that the mine would pay, and leave a good profit? I believe it would, and when down that depth the company should bear in mind that they had a shallow mine. I beg to say that I am in no way connected with the mine nor party whatever, but merely give them my independent opinion through the Royal Cornwall Mines, July 21.

TH

Meetings of Public Companies.

WHEAL COLENSO MINING COMPANY.

A meeting of adventurers in Wheal Colenso was held at Sealey Hotel, Marazion, on Friday, July 15.—Mr. R. R. MICHELL in the chair.

The mine was divided into 6000 shares, on the Cost-book Principle.

The leases on terms of the license—21 years at £200 per annum—were directed to be applied for. A call was made—300/- for working the mine.

The following reports, from Capts. Henry James, Henry Skewis, P. Vincent, Thomas Gill, and W. H. Richards, were read:

Marazion, July 14.—According to your request, I have inspected the above mine to-day, and more especially the lode known as No. 4 lode, on which a shaft is sinking, and now down about 12 fms. below surface. This shaft was sunk for about 7 fms. perpendicular; there a lode was intersected underlying south about 2 to 2½ fms. feet per fathom. This lode, for the 5 fms. sunk on its course, is from 3 to 3½ ft. wide, and in places has produced some rich grey and some yellow copper ore. The general character of the lode is exceedingly favourable for the production of copper in depth, being now composed of soft gossan, rich spots of grey copper, with green carbonate, &c., and has a very regular underlay, with a soft prian and flock on the hanging wall. I need not make any further remarks on this lode, than to state that as far as seen, which is only 12 fms. deep from surface, it has everything in its general character to warrant a productive lode at deeper levels. The sinking shaft is at present carried on by means of a windlass, but a winch will be required, and now in the summer, not much greater than six months fathoms may be sunk before much water will be met with. This sett contains five or six known lodes, all of which produce mineral; and as a shaft was sunk by a former party on what is now called No. 5 lode, near the centre of the sett, this shaft, although only 17 fms. deep, has produced a large quantity of tin-stuff, and, from evidence which can be produced, it can be proved that the only reason which the former party had for suspending operations was the influx of water in the winter. Looking at the favourable geological position of this property, which contains three large cross-courses, also a large eavan course, and the fact of its being surrounded by the Halamanning and North Grylls to the north, and Wheal Grylls and East Grylls to the south, and other mines which have produced large quantities of mineral, I do not hesitate to recommend it.—HENRY JAMES.

Wheat Cartis, July 14.—According to your request we have inspected Colenso Mine, which is situated in the parish of St. Hilary. It is bounded on the south by East Grylls and Wheal Grylls, on the north by Croft Gothic and Halamanning, on the west by Grylls Consols and Trevelyan Mines, on the east by North Grylls. There are three or four east and west lodes passing through this sett, three cross-courses, and one large eavan course, on the Trevelyan lode there is a shaft sunk about 12 fathoms from the surface, on a lode 3 feet wide, composed of gossan, iron, spar, with good stones of grey copper ore—a very promising lode indeed. The sett altogether is one of great promise. It is in the midst of good mines, and a good mining district.—H. SKEWIS, J. VINCENT.

Great Wheal Vor, July 14.—I have inspected Colenso Mine, according to your request, and find that it is situated in the rich and well-known district of Wheal Grylls, in the parish of St. Hilary; it is bounded on the south-east by East Grylls, on the south-west by Wheal Grylls, and on the north by Halamanning: all these mines yielded large quantities of copper and tin ore at a very shallow depth, and returned large profits. Wheal Colenso is a large and extensive sett, with a great many lodes passing through it; I have examined one, which they have for some distance, and lies in virgin ground for a great length; this lode is about 3 ft. wide, underlies about 2 ft. in a fathom south, and is well defined; it is composed principally of quartz and a beautiful gossan, and yielding some stones of splendid grey copper ore; it is in very congenial strata for making large deposits of minerals, and I have no doubt that if this lode alone is worked in a judicious manner that it will remunerate the adventurers well for their outlay. There are many other lodes adjacent, that if laid open in this virgin ground I have not the least doubt of their also proving productive. I think this is a very valuable mining property, and if properly carried out will make large returns.—THOMAS GILL.

Mariation, July 14.—Permit me to hand you the following report of the above mine:—This mine is situated in the parish of St. Hilary, in the county of Cornwall, and is held under grant for 21 years, at 1-20th dues, from Mr. J. W. Buller; the sett is very extensive, being from 400 to 500 fms. long, and 300 to 400 fms. wide, and is bounded on the north by Halamanning and Grylls Consols, on the east by North Grylls and the Great West Mine, on the south by Wheal Grylls, East Grylls, and other mines, and on the west by Wheal Florence, West Grylls, and Trevelyan. There are several well-defined lodes traversing the entire length of the sett, and embedded in a good mineral-producing lode, or clay-shale; these lodes are also intersected by large and powerful cross-courses and dykes, of a first-class description; near the south boundary of the sett is No. 1 lode, which has been worked to a depth of about 14 fms. from surface, at which point the lode is about 2 ft. wide, with a fine appearance, and producing good stamping work; this adit has been driven through Oken Vean and both East and West Trevelyan, and up to within about 20 fms. of this sett; this adit in driving progress will lay open and give the lodes to a depth of 33 fms. from surface; this I consider a very important point to be pushed forward. No. 2 lode is about 1 ft. wide, and of a promising appearance, but little has been done to prove its value. No. 3 lode is large and well defined, producing about 6 cwt. of good quality tin to the 100 bushels of stuff; the ground about this lode is of a most congenial nature for the production of mineral; there have been large quantities of mineral raised from this lode, which is situated about 70 to 80 fms. from the south boundary of the sett to where the adit would intersect No. 1 lode. No. 1 lode has been worked to a depth of 12 fms. from surface; this lode has a magnificent gossan back, and at 7½ fms. from surface the lode produced rich grey copper ore; some of this ore will make a produce of 25 to 30 per cent. for copper; the lode is from 3 to 5 ft. wide, and has the appearance of those that seldom, if ever, fail to produce large deposits of this kind of copper ore, as was the case in three or four mines close adjacent to this property, a little to the east and north of this lode. No. 5 lode has been laid open and partly worked on by the sinking of a shaft about 17 fms., and the driving some few fathoms west, at which point the lode has a champion-like appearance, producing tin-stuff of a rich description. I should advise the erection of an engine on this shaft, say a black cylinder, with 20 heads of stamps; these can be kept fully employed from these lodes, and large quantities of mineral sent to market. There are yet other lodes standing in whole ground to the north, that are, in my opinion, as well as of other practical men of the district, to be of great value. This portion of the sett is all in virgin ground, and in every respect well situated, being about three miles from the shipping port of St. Michael's Mount, for the carriage of ores and materials. In conclusion, I would remark, looking at the geological position of the sett, together with the number of lodes embedded in a good mineral-producing strata, convinces me that if this property is worked in a mining-like manner, and with the spirit it deserves, it will soon become a good and lasting paying mine.—W. H. RICHARDS.

FESTINIOG SLATE QUARRY COMPANY.

The adjourned half-yearly meeting of shareholders was held at the company's offices, Abchurch-lane, on Wednesday, the object being to receive the report of the Committee of Investigation. As our reporter was refused admission, we are unable to give the particulars of the discussion which took place upon the report, which may have removed some of the unfavourable impression which it is to be regretted existed, though we understand that the reply of the board is not regarded as satisfactory by independent shareholders, and that the Committee of Investigation felt much annoyed that the executive should have availed themselves of their official position to enclose forms of proxy for signature in the notices concerning the meeting. The subjoined are abstracts of the report of the Committee of Investigation, and the directors' reply thereto:—

The committee acknowledge the frankness and courtesy of the Chairman and Managing Director, but question the administrative power of the board. The committee suggest that the directors should have followed the lead of an engineer whose interest would appear to be rather in the improvement of the Festiniog Railway than of their property. The committee consider the purchase of the Blaen-y-Cwm surface lease was a bad idea. With reference to the difficulty experienced in extending the water power, and the inadequacy of the present reservoir for storing sufficient water, an old slate quarry on the Blaen-y-Cwm estate, at a much higher level than the company's quarry, which the water from a considerable drainage area could be made to flow, was pointed out to the committee by the directors, who informed them that, for a cost of about £10, an embankment could be made across the outlet, and a reservoir made to store more than a million gallons of water; if so, it would be a very proper expenditure, and the committee would further recommend your directors to consider how far they could practically economise the supply of water for power by the introduction of turbines. The committee approve of the renting of the wharf at Port Madoc. The committee recommend the appointment of one person to ship the slates, superintend the quarry, and keep the company's books. For the additional capital now required to develop the business of the company, it appears to the committee that it will be necessary to issue preference shares for the terms of the loan recommended by the directors are less than attractive. What money is required for the quarry itself will, no doubt, be obtained from the realisation of the large stock now on hand—a subject to which the committee desire to call the earnest attention of the directors.

The directors, in replying to the Committee of Investigation's report, state that the committee appear to have discovered reasons for the selection of the present site for the machine-house. The directors have not been made acquainted with those reasons, but trust that, as two of the members of the committee represent the principal vendors of property to the present company, they may, perhaps, know more than the directors of the subject. The deviation in the Llyn Bowydd embankment has secured the company 5 per cent. on the extra outlay. The directors deplore the singular poverty and weakness of the committee's suggestions, and the loose and inefficient manner in which they have performed the duty entrusted to them. Both shareholders and directors had a right to expect, and no doubt did expect, from the committee ample, lucid, and specific information and recommendations on a variety of prominent questions affecting the company's interests; such, for instance, as the value and capabilities of the property generally—the present condition and aspects of the quarry—it's productive capabilities and prospects—it's future development—the character and quality of the rock on the different floors—the system of working pursued, including the mode and cost of disposal of waste—the rate of wages and cost of production as compared with other quarries, and other details—the condition of the existing machinery, works, and plant, and the amount of produce per month they are capable of turning out—the causes of the present limited production—the amount of production necessary to pay a dividend—the increase of production obtainable—the operations and machinery requisite for obtaining that increase, and their probable cost—the question of water supply—site and cost of reservoirs for the present and future operations—way-leave arrangements—trails and rates of toll on the railway—construction of wharfs—quality and condition of the stock on hand—prices at which it can be sold—obstacles, if any, to its sale—means to be adopted for establishing a trade connection—means which have been taken for that object, and their result—the amount of additional capital which ought to be raised—the terms on which it can be raised, and the specific purposes to which it should be applied—with various other details necessary to enable the shareholders to judge what is the present position of their property, what particular steps should be taken in the present crisis, and what course should be pursued for the future. The committee appear to have addressed themselves rather to a personal attack upon the directors than to their proper function of arriving at conclusions as to the present position of the company, and the operations to be adopted for the future. They disapprove of the works necessary in the opinion of the directors to bring the production of the quarry up to a paying point, and the only alternative suggestion made is the possible substitution of a turbine for the present overshot water-wheel. By abandoning the use of the lower mill pond, and leading the water to the mill pond, might be obtained, how much the directors do not at present know; but even if by such means such an economy of water could be obtained as would make the higher revenue, alluded to in the report, suffice for the constant supply of all the machinery required, additions to the present mill to hold the new saws would be necessary, the whole resulting in a considerable expenditure of money on the present unfavourable site, the running of which will involve a loss of about 700/- a year on a production of only 600 tons

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per month. With reference to the opinion that "what money is required for the quarry itself will, no doubt, be obtained from the realisation of the large stock now on hand," the directors beg to state that the realisation of that stock has for a long time past received their earnest attention, and is one of no small difficulty, for want of a regular trade connection; and, so far as the directors know, the committee have not been at the trouble to inform themselves either as to the quantity or quality of that stock, the circumstances in which it is now placed, or the probabilities of its sale, and have not endeavoured to ascertain what difficulties there have been or are in the way of its disposal, or what means have been or ought to be adopted to ensure that result. The committee have surprised the directors even more by what they have failed to do by what they have done; but without going into further detailed comments on a report which, on its face, so signally fails to fulfil its mission, the directors cannot but remind the shareholders that the severe and comprehensive condemnation contained in their report has been arrived at by the committee, not only in contemplation of the resolution referred to, but without any opportunity of explanation or self-defence on the part of any of the directors, and without, as the directors believe, any attempt on the part of the committee to realise the labours of the directors, or the circumstances under which they have acted during a long and trying period, and without any investigation of large classes of subjects embraced in the administration which is so sweepingly condemned. Its tone is such that if the report be adopted by the general meeting, it would preclude the directors from retaining office: neither could they undertake the responsibility of conducting the company's affairs without such means as they consider adequate for the purpose.

CASTELL CARN DOCHAN GOLD MINING COMPANY.

An extraordinary general meeting of shareholders was held at Manchester, on July 13.—Mr. J. BRIGHT, M.P., in the chair.

The balance-sheet for the year ending June 30 was taken as read, from which it appeared that the receipts from calls and interests were 27,681/- Os. 8d., and expenditure 20,912. 10s. 7d. The assets showed balance at bankers £762. 10s. 1d., and gold in hand 35 ozs. 6 dwt., valued at 1367. 9s. 1d.: total assets, 813/-.

From the agent's (J. Williams) report the following work had been done at the mine since its commencement:—An open cutting has been made 8 yards, to intersect the gold lode; the lode at the intersection carried splendid visible gold. An adit has been driven 35 yards, which intersected the lode 39 yards deeper than the adutting; visible gold has been discovered at this intersection; the lode in the east end is 2½ feet wide. A shaft has been sunk from the open cutting at surface, which communicated with the adit at 28 yards; visible gold was found whilst sinking this shaft; some few fathoms of the lode was stopped, and yielded splendid gold. About 25 yards west of the shaft a cross-cut was made 35 ft. long; the lode at this place is 12 in. wide, and shows specks of gold. Three open cuttings have been made at the east part of the sett, and the lode discovered in each of them, varying from 3 to 7 ft. in width; visible gold has been found in all of them, especially in the lowest, where miners are now working. An opening has also been made 21 yards long on a cross lode in the south part of the sett; this lode crosses the gold lode, and varies from 2 to 12 inches in width, and is composed of quartz, with occasional spots of copper and lead. Two buildings have been erected for powder and storing the rich quartz. A two-roomed stone engine-house has also been erected, in which six Britten's amalgamating pans have been put and a furnace. About two miles of road have been repaired, the River Lein strongly paved across, and a new road, 261 yards long, made in continuation to the engine-house. A water-course 260 yards long has been made to work the Britten's machines, and about 1000 yards of the large water-course, to work the large machinery when erected; this water-course is nearly finished. A large quantity of stones have been blasted, and are ready for building the large engine-house, the contract for which has been let for 292/- There are a good many tons of quartz on the ground ready for the stamps.

The directors reported that they were glad to be able to speak in favourable terms of the present position and prospects of the mine. The company is at last in the possession of a lease for 21 years, from Sir W. W. Wynn, Bart., at a royalty of 1-12th, and a gold license from the Crown of £124/- Two of Mosheimer's machines had been purchased, and six of Britten's amalgamators, the latter of which had been at work about a fortnight. The report also states that whilst the Britten's were erecting, John Parry, jun., had obtained 36 ozs. 6 dwts. of gold from about 5 tons of the alluvium, and that during the last week the Britten's had produced 4 ozs. 8 dwts. of gold from 18 cwt., making a total of 40 ozs. 14 dwts. from 5 tons 18 cwt. of mineral. They had ordered of Messrs. Thornewill and Warham, of Burton-on-Trent, castings, &c., for a 50-ft. water-wheel, and a battery of eight hours of stamps with provision for sixteen when required; the cost to be £50/- They had also contracted with Mr. Williams, of Dolgellau, to make and erect the water-wheel, &c., for 1881, and to erect a building for the machinery, according to plan, for 292/- making a total of 1140/- So that in about three months' time, with an outlay of (say) 1500/- the machinery must be capable of reducing 40 or 50 tons of quartz per week. There was a considerable quantity of quartz already raised, and some of it very rich in gold, and the mine, in their opinion, was likely to produce satisfactory and continuous results. It was, in their opinion, impossible for a mine to be more advantageous situated for economical working, as, from its elevation, no pumping apparatus would be required, and during the late unusual dry weather there had been sufficient water in the River Lein to drive the machinery about to be erected. In consequence of the resignation of Capt. J. Williams, on account of ill-health, the directors had engaged the services of Capt. John Parry, late of the Vigor and Clogau Mines. In accordance with the regulations of the company, the directors retire from the board of management, but were eligible for re-election. The directors further state that it had been represented to them by several large and influential shareholders that it would be attended with advantages to the company if an office were opened in London; they, therefore, suggested the propriety of having the chief office in London. Should this suggestion be approved, the directors recommend as secretary Mr. J. C. Goodman, to be the successor of Mr. Readwin, who resigns, and that the chief office of the company be in London.

On the motion of the CHAIRMAN, seconded by Capt. KEED, it was unanimously resolved—"That the statement of accounts and directors' report be received and adopted."

The propriety of removing the office of the company to London was discussed, and it was decided that it would be better to remain as at present, if Mr. Readwin would continue the management *pro tem.* Mr. Readwin assented to this, whereupon the following gentlemen were unanimously elected directors for the ensuing year:—Mr. J. Bright, M.P., Lieut.-Col. Tottenham, Capt. Reid, Mr. J. C. Roberts, Mr. T. Fothergill, and Mr. T. A. Readwin. It was further unanimously resolved—"That Mr. Chas. Duffield be paid the sum of 10/- for auditing the accounts for the past year, and that he be elected auditor for the year ensuing."

The thanks of the shareholders were awarded the Chairman for presiding, and the proceedings terminated. Some very large and rich stones of gold-quartz were exhibited.

NORWEGIAN COPPER COMPANY.

A special general meeting of shareholders was held at the offices of the company, Moorgate-street, on July 15, for the purpose of enabling the directors to give more in detail Capt. Jewell's opinion as to the mines, as well as his views with reference to the working of the same,

Mr. BASSETT SMITH, F.G.S., in the chair.

Mr. J. HILEY (the secretary) having read the notice convening the meeting, submitted the report of Capt. Jewell, as follows:—

July 5.—In accordance with your request, I have very carefully inspected Bjorne and Dahlemyr mining property, situated about 18 English miles from Drammen, a principal shipping port of Norway, and beg to hand you my report thereon. This concession comprehends a surface of 700 fms. in length, and a proportionate width, in which are several known lodes traversing the entire length of the sett, two of these only have been wrought on, the Bjorne and Dahlemyr lodes. The Bjorne, or south lode, has been worked on for 15 fms. in length, by an open excavation from surface 5 fms. deep, and a shaft sunk 4 fms. below the bottom of the excavation; this sink is full of water, and prevented my examining the lode at this point; the lode is over 6 ft. wide in the excavation, and consists of quartz, iron, and stones of copper ore, there was not a stone out of the many that I broke but contained copper ore of good quality; it is a strong promising lode. The Dahlemyr, or north lode, has been opened and worked upon for 100 fms. in length; 20 fms. of this is over 24 ft. wide, and the average width for 80 fms. is over 14 ft., consisting of beautiful gossan, muriac, iron, and good quality copper ore; I very much regret not being able to see and examine this lode at a deeper point, but with the appliances at Capt. Holman's command it was impossible for him to clear the mine of water for some considerable time, consequently my inspection was confined to the back and upper parts of the lode that is to be seen above the water. There are three shafts or pits, and several cross-pits, on this lode, the depths of those shafts, Capt. Holman informs me, are 6, 5, and 4 fms., and at the bottom of the deepest shaft the lode is 24 ft. wide, and it contained more copper at that point than had been seen in any previous part of the lode. A stronger, more kindly, and masterly lode can scarcely be met with, and, judging from what Capt. 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Holman's command it was impossible for him to clear the mine of water for some considerable time, consequently my inspection was confined to the back and upper parts of the lode that is to be seen above the water. There are three shafts or

have been sold, at 92½ 10s. per ton, Paris conditions. The Rotterdam market has been firm, and the same report is made with regard to Berlin, Cologne, and Stettin, where transactions, although of no great importance, are still effected at firmly sustained rates. At Hamburg the favourable advices from England are received with confidence, and for the stocks existing on the market higher prices have already been established. Operations in present little activity on the Dutch market, and since the last public sale only some small lots have been dealt in at Amsterdam and Rotterdam at 61½ fms. to 62½ fms. The Paris market is failing, English tin being there quoted 1062; Banca, 112½; and Detroit, 110f. per ton. There have been few buyers at Berlin, but prices remain without notable variations. The article attracts little attention at Hamburg, and in consequence of the recent fall on the London market, English tin has receded in value. Affairs in lead are inactive at Paris and Marseilles, but the rates previously indicated are maintained without change. At Hamburg the article is sustained with tolerable firmness, but this is due more particularly to the smallness of the stock on hand, the transactions effected presenting no great importance. Little business has been done in lead at Berlin; nevertheless, the demand for export appears to be reviving. The Cologne market has remained without change; Stettin has been firm. A considerable amount of animation has been displayed in zinc; thus, at Paris previous rates are firmly maintained, rough zinc being held at 25½ 12s., and rolled zinc of the Vieille-Montagne Company at 30f. per ton. On the Hamburg market some rather important affairs have been concluded, and at Breslau the rise has also made rapid progress.

We may note one or two miscellaneous facts. A company has just been formed at Antwerp for the creation of a great workshop for the construction of engines, railway plant, and objects required in navigation. This concern will take the name of the Antwerp Forges and Workshops Company. The St. Leonard Company, at Liège, for the manufacture of iron and steel, as well as tools and machinery, has declared a dividend for 1863-4, of 5f. per share. The Manrienne Mines and Blast-Furnaces Company has also announced the payment of interest on its shares at the rate of 5 per cent. per annum.

THE BRAZILIAN GOLD MINES.

Much interest existing as to the position of the various gold companies working in the Brazils, in consequence of the rumours circulated respecting the St. John del Rey Company, we append an epitome of the official despatches received during the week:

ST. JOHN DEL REY.—The managing director (Mr. Hockin) has addressed a circular to the shareholders, with the view of putting them in possession of the fullest information as to the progress of the work of repair going on in the Bahia Mine, and generally as to the present state of the mines, and at the same time to prevent misapprehension which might otherwise arise from partial intelligence. It is satisfactory to find that Mr. Gordon hoped to resume active operations in the Bahia by the beginning of the present month. The letters received by the last mail, dated Morro Velho, June 17, inform the shareholders that the produce extracted during May has amounted to 16,788 oits. It is mentioned that though May has 31 days, only 30 days' produce is included in this return. The first day of the month being a Sunday, the ore reduced on that day was included in the month of April. It should also be explained that only one kibble has been kept hauling in the Bahia Mine, and the supply for that kibble has been obtained entirely from the slide in the western section of the Bahia, called East Quebra Panela, which, being rather poor, had been left unworked since March, 1860. They have had no ore from the whole body of the Bahia, from the sump in the east to the vertical line passing on the west side of the section 149, in the East Quebra Panela. The eastern part of the Cachoeira has not afforded its usual supply, owing to the small amount of sinking effected in May; so that the month's produce has been almost entirely derived from the Cachoeira Mine, and that even not giving its average amount of ore for treatment. Of the 1518 tons treated in the stamps, no less than 2200 tons consisted of killas, rejected material from the daily supply on the spelling-floors, and brought in from the refuse depot close to the works. The standard shown in the quantity of stone stamped cannot be taken as the standard yield of the ore, as it includes the large quantity of killas before stated, excepting the 279 tons of the material treated separately during the last division (nine days) of the month. It will, therefore, be understood that the returns for the month of May should not be taken as from ore, the greater part of the stone reduced being killas and other rejected material, and, therefore, the produce will not afford any guide as to the gold contents of the ore as usually treated. The produce during May is only the result of an unfavourable partial working of the mines, while the cost is unusually heavy, not so much for native pay as many previous months, but greatly increased by the heavy consumption of large logs of timber in both mines, but more especially in the Bahia. The quantity of sawn timber required has been very great for runners and planking; besides the cutaway incurred in providing 150 feet of new pumps, and a new lift for the Bahia Mine. These demands have caused an increased cost, though the prices of provisions have been favourable, and having at the same time such extreme small produce; hence arises the loss on the months' working. In the Cachoeira Mine, and chiefly towards the end of the month, the sump has been sunk 4 ft. vertically; but it was previously so flat that this amount of sinking, without admitting of a slope either east or west, was not of any present advantage. The sinking is being prosecuted with vigour, and its benefit will be felt when it admits of sloping east and west from the sump. As regards the Bahia Mine, it is mentioned that more time has been required than was at first anticipated in getting the pillar and timber work in this part of the mine accomplished; but it appeared desirable to put in the pillars before completing the planking of the back of the Bahia shaft. This work had been effected at a great cost, and at the sacrifice of considerable produce by delaying the stoning operations in the body of the Bahia; but there is good reason to conclude this will prove in the end the best course for the proprietors, and the future safety of this valuable part of the mine property. With respect to the gold extracted during the first division of June, being a period of nine days, and amounting to 5357 oits, it is explained that this produce has been derived from the general mass of stone treated during that period: 281 tons of killas, picked and separately treated, has given a yield of 0·657 of an oita per ton. The ore is stamped separately, so far as practicable; but some of the sand from killas, produced by the stamps operating on it, is amalgamated with the general body. About the beginning of next month, all going well, they hope to resume drawing ore from the Bahia Mine.

DON PEDRO NORTH DEL REY.—Capt. Thomas Treloar reports that the produce for May was 1267 oits., being 114 oits. more than in the preceding month. The weather has been all one could desire; so the operations generally, both above and below ground, have been pushed forward vigorously in the right direction for the future advantage of the company. They are taking advantage of the present dry season to clear and secure the entrances of the mines to the upper lode, which would not admit of it during wet weather, in order that when the next wet season commences the works upon the upper lode and boring therefore down to the under one may proceed without interruption. The more seen of Maquine, the more is their belief confirmed that their expectations will be realized. They have resumed operations at the Praia. At Cornelius Mine they are boring from the upper lode down to the under ore. The sludge has shown gold, but forborne holding out any promises therefrom until he has more satisfied himself as to its value.

ANGLO-BRAZILIAN.—Capt. Thomas Treloar reports that the produce for the month of May was 195 oits., and he regards this as very encouraging, considering the quality of the stone that had passed through the stamps. The stone in the Gongo and Buraco Seco Mines present favourable indications. At the Barril adit, although but a small force has been kept at work, progress has been made; upwards of 10 fms. have been opened out. The stopes in the end at present is high.

SANTA BARBARA.—Captain Bryant, Pari, June 12: Mine: The lode in the bottom of the shallow level continues much as last reported both in size and quality. The new shaft on the south part of the present bottom is progressing favourably; the same may be stated of the clearing of the adit level south, but the old workings being very wide, and mud wet, we cannot make the progress we otherwise should. The lode throughout the stopes continues much as last reported—smaller than usual, and this is owing to a certain extent on the quantity of stone raised. The lode at the end north from the shaft is about 5 feet wide. In the shaft the lode continues 9 feet wide, with its usual promising appearance. In the trial level cross-cut we have not met with anything yet. In the reduction department I have nothing to report, more than that the stamps are regularly employed. The rippled tables have been undergoing repairs and alterations, consequently all the stones have been stamped over skins, and the same will be cleaned up as usual on the 20th; on the 25th we shall send on the gold to go down by the East del Rey Company's truck.

GOLD MINING IN CANADA.—By "the Gold Mining Act," assented to June 30, amongst other things, provides that licenses to mine for gold on any unsold Crown land, within the division mentioned in the license, shall be granted at \$2 per month. Licenses to mine, with the consent of the proprietor, on private lands, pay 11 per month. Each Crown land gold license may stake out one claim on unoccupied Crown land and work it. For alluvial mines the claims are to be 20 feet front by 50 ft. deep, on a river or large creek; 40 ft. front by 50 deep, on a small creek or minor stream; in a gully 60 ft. along, and to extend from hill to hill; and on a surface or hill side, digging 60 ft. square, except where a company intend to hill-tunnel; then, upon application, the officer for the division may grant such larger claim as he may think fit. For quartz mines one person may claim 100 ft. on the lead, and 100 ft. on each side thereof, measuring from the centre of the lead. Companies of two or more working jointly may stake out 25 ft. additional for every additional miner, the whole not to exceed 500 ft. on the lead. Claims are forfeited by more than a week's suspension. The discoverer of a new mine is entitled to a free license for 12 months.

NEW GOLD FIELDS.—A Nelson (New Zealand) paper says:—"The existence of an exceedingly rich gold field within 35 miles of Nelson cannot now be questioned, and we are realising the first fruits of it in paying an enormous advance in the price of wages and for the first necessities of life. In fact, Nelson, Picton, and Blenheim seem likely to be nearly deserted by the men for the Wakamarina gold fields. Several claims are yielding 18 ozs. of gold a week per man. Six men got upwards of 150 ozs. during the week; three Maories, who were working nine miles up the river, got 36 ozs. on one morning; Mr. T. Snow and party got on the same afternoon 16 ozs.; and Wilson's claim on the same day gave 18 ozs. from the bank, where, in the opinion of most of the diggers, the largest amount of gold will be found. One party is reported to have obtained nearly 5 lbs. weight of gold in the course of half an hour. We learn from Mr. Robert Burns, who with his cousins returned from the Wakamarina on Thursday, that they saw two diggers take out in less than two hours 15 lbs. of gold. They had felled a birch tree growing on the edge of the river, and fossicking about its roots, they came upon this rich prize. It is thought the whole watershed of the Pelorus will prove to be rich in gold."

HYDRAULIC QUARTZ-CRUSHER.—Messrs. Perkiss and Gay, of Yuba, California, have invented an improved Chilean mill. In this machine the common Chilean travelling crushing-wheels are employed, and the patentees have hit upon the novel idea of placing water-buckets upon the sides of the wheels, thus converting them into water-wheels. The buckets are supplied from a small tank above, which rotates with the wheels, the tank being filled by a suitable conducting trough. When the water is let on the wheels travel around in the usual circular quartz trough, without assistance from any other motor. The water is prevented from entering the quartz trough by an ingenious arrangement of aprons.

CALIFORNIAN HYDRAULIC ENGINE.—Mr. Thomas Hansbrow, whose "Californian Pump" we favourably noticed at the time of the recent International Exhibition, has invented an improved water-engine. It is stated that the invention is embodied in the form of a hydrostatic engine—run entirely by the pressure (not volume) of water—works cold water as an expansive agent, and does it most admirably. Messrs. Hansbrow and Redding intend having one constructed for practical exhibition of its workings at the Fair of the San Francisco Mechanics' Institute, to be held in September next. They have a small tin model running at Mr. Hansbrow's store, which, though rudely constructed, exhibits the power of the engine, it being a man's work to stop the motion. It will supersede steam whenever a pressure of water can be obtained. In

this respect it will be especially serviceable and invaluable throughout the mining regions of California and the Pacific coast, as well as in our cities, where there is a supply of water from public works. The inventors intend building the engines immediately, and introducing them into use. Intelligent mechanics who have examined the rough model, unite in pronouncing it the greatest invention of the age, the sewing-machine not excepted, and like all great inventions, it is simplicity itself.

THE DRESSING OF ORES.

[Notes from a Lecture by Prof. W. W. SMITH, Royal School of Mines, London.]

There is, perhaps, no branch of mining that requires greater care on the part of the mine captain than the stamping of the ores, for he has to determine whether it shall be stamped fine or rough; and, to decide this, he must also endeavour to keep the grains as large as possible, consistent with the complete separation of the deleterious matter. Some valuable experiments have been made in Hungary respecting the advantage of having a heavy or a light stamp-head; but it is not well to be guided by any such results, it being better to try experiments with the particular stuff one has to reduce. With respect to the dressing of gold ores, you require about the same amount of water, whether the head be light or heavy, though the amount of work accomplished by the heavy heads is far greater. With other ores the amount of water must vary with the weight of the head. Of the Hungarian experiments mentioned above we may state that the following were the proportions of fine, middling, and rough grains obtained:

With heavy heads	Rough, 11 per cent. Medium, 26 per cent. Fine, 63 per cent.
With light heads	Rough, 9 per cent. Medium, 20 per cent. Fine, 71 per cent.

We have, by-the-bye, omitted, in speaking of stamps, to state that the stamp beds are sometimes of cast-iron, but that with gold and tin ores it is usual for the stamps to beat their own beds, and, with this intent, the hardest stones are broken first. A practised ear will often be a sufficient guide to the manager of a mine as to whether the stamp-bed is in good order, as he can also determine by the sound if the stroke of the stamp be of its proper length.

With regard to getting the material away from the stamp-heads, we must divide the question into several heads. The old method was very inefficient—viz., to allow the stuff to run from the stamp-heads into a pit of a more or less oval form, 4 ft. deep, and stopped at its lower end by a lattice. Little or no separation could be effected in this rough mode, and thus the labour was increased greatly in the after processes. On this account it is most important to run the stuff from the stamp-heads in such a manner that, free of expense, so to say, it shall separate itself; for if some separation be not at this early stage effected it becomes almost a matter of impossibility to accomplish it afterwards. When we have grains of all sizes, varying from fine powder to pieces as large as marbles, and of all kinds of shapes, it must be apparent that to lay hold of all these together is quite impossible, and it is thus most desirable to classify the stuff at once, and nowhere is this more successfully done than in the mines of the Hartz. For these reasons it is that we would substitute for the old oval pit some of the modern improvements, such as the following, common in Cornwall. Here the ore comes from the box on to an inclined shallow compartment, where the roughest and purest grains are caught; thence it is carried into a series of long troughs, called ties, placed at a gentle inclination, varying with the stuff to be treated. By carefully regulating the stream of water in these you may separate the ore well. The German miners divide their troughs, the first into which the ore comes direct from the stamps; the trough is placed at a certain angle, which gives a velocity to the water that passes over it, and here the larger grains are caught. From the end of this trough the stuff passes into a second one, a little wider, and still less inclined, and so on to third, from which it passes into a round trough, into which the stream is so brought as to give it a circular motion. The whole arrangement seems good. A far more satisfactory plan is that known in the Hartz as "Spitzkase," invented by Mr. Rittengen, which has a great and special advantage, not sufficiently appreciated in this country. The objection to our troughs is, that when one set become full you require a second set whilst you empty the first; and in the process of transfer from the troughs a great deal of manual labour is lost. This difficulty is entirely avoided by Mr. Rittengen's plan of boxes. There is a very nice little machine at work at the Devon Great Consols Mine, consisting of a wheel like a common overshot water-wheel, 5 ft. in diameter, with buckets, which are fed near the top by water containing the tinstuff. On passing round the wheel comes to a trough, where the lighter portions of the tin contained in the water with which the bucket is partially filled flows over, and is carried away to be treated as slimes, whilst the rougher and more tenacious particles remain in the trough, whence, finally, they are forced by a jet of water into another bucket. At Drake Walls Mine there is a little apparatus similar to Mr. Rittengen's, consisting of a conical basin, into which the stuff runs, and having a hole in its bottom through which the rough escapes, and the slime is carried over the top by the rush of water. There are other means of separating valueless ore from slime, as the Welsh baffle. Again, there is another class of apparatus, called shaking trunks, employed for getting rid of the rough stuff mixed with the fine. These trunks are generally made wider at the bottom than at the top—say 2 ft. wide at the head, and 4 ft. wide at the bottom, so that the stream opens out as it flows down. The ore comes on the trunk with the water, having been mixed by a shovel in a box at the head of the trunk.

All the apparatus mentioned above is but preparatory, and in consideration of the after processes, the material falls under two distinct heads, according to its size, and the machines for cleansing it are—1. Buddles, —2. Frames. Buddles depend on the principle of introducing water on a more or less inclined surface, so as to bring into play the separation of the stuff, according to the specific gravity of the particles. Important points in this are the impetus of the water, its quantity, and the area of the surface of the opposing force. The angle of inclination of the bed of the bundle must be adapted to the stuff to be treated. The simple form of the earlier period was to bring the stuff as close as possible to the head of the bundle, but this is now altered. The great difference between bundles and frames are, that in the first the stuff shall remain in it and accumulate, and afterwards be dug out by hand; whereas in the frame the stuff is only allowed to accumulate in very small quantities.

In most improved machines for washing the water and ore is mixed in a box, and driven by the force of the water through a grating, by which the rough particles are caught before the ore passes over the machine. The bundle is nothing else than a long box, at least 8 ft. long, or, better, 12 ft. long, and from 3 to 6 ft. wide. The operation of washing consists of the following treatment:—The stuff runs down on the head, or jutting board, between pegs so arranged that the thick water may be equally distributed over the edge of the bundle. The bed of the bundle is made to slope in proportion to the roughness of the material to be washed. There is a board at the bottom of the bundle in which holes are made, to be stopped with plugs, and by which about 1 foot of water is always kept at the tail, for if it were allowed to escape as fast as it flowed in, it would form a channel in the stuff. The best of the ore will, of course, be found nearest the head of the bundle; it will, however, be necessary to re-bundle the contents of the several divisions of the ore. The circular or round bundles are very useful when you want to get through a great quantity of work. They consist of a circular base, conical in form, and made of planks radiating from a centre outwards. The ore is delivered from a funnel encircling the centre of the bundle, and the ore is kept in motion by lathes or knives, made continually to revolve on the table. Slime trunks act on the same principle as bundles. Trunks are of two kinds, stationary or moveable: the former are used in the gold mines of Brazil and the Hartz.

In old times, hides of oxen, with the hair turned outwards, were used as frames, also blankets and rough cloths, especially for gold ores. In such cases the auriferous mud is allowed to flow over the cloths for a considerable time, until some quantity is collected. The frame is a rectangular table, with an edge around it some 5 in. in height, and a head-board, over which the slime flows on to the table. Between the head and the table is a flap of wood, attached by leather to the head-board, and which allows of the table being turned on its ridge, for it rests on two pivots apart from the fixed head-board. Some frames are hand frames, others machine frames—that is, some are worked by manual labour, others by water power. The object of the frame being made so as to turn, is to wash the matter accumulated on it off into boxes which are placed underneath it. Thus as soon as a good film is deposited on the table, the supply of slime is cut off, and a stream of clear water allowed to flow over it, and the girl passing assists the clearing by a small tool she holds for the purpose. The frame is then turned over, and the slime washed from it, when it falls into the boxes underneath, of which the one nearest the head will

contain the richest ore. The most elaborate frames are those to be seen in Saxony, where they are of great length, and made in divisions.

TRUTH'S ECHOES, OR SAYINGS AND DOINGS IN MINING.

The Mining Share Market continues inactive, and the business doing of a very restricted character. Still there are numerous enquiries for shares at the minimum quotations, which cannot be obtained, which imparts an improved tone, and it appears obvious that a better market is not far off. During the long quietude which has prevailed in the market, shares have been quoted much lower than any given number can be purchased at, arising, probably, from forced sales of small numbers. Hence it may be fairly assumed that an advance and general improvement will shortly take place, especially as the standard for copper ore has improved during the last three weeks.

WEST SETONS have been offered for more freely, and WHEAL SETON is also in demand, several shares having changed hands at improved figures.—EAST BASSETT are also in request at minimum quotations.—COOK'S KITCHENS have receded, and are offered at lower rates.—NANGLES, after showing a little more firmness, left off weaker.—CARN BREA and GREAT SOUTH TOLGOY have declined, and more freely offered.—CARNSIDE is at better figures.—NORTH BASSETT have changed hands at fair market prices.—WHEAL FRANCIS are enquired for at nominal figures.—TINCROFTS are quiet, at present prices, advancing prices.—EAST GREENVILLE have been extensively dealt in, at advanced prices, and likely to be in great demand.—WHEAL GREENVILLE are rather quiet, without any material change in price.—NORTH CHOFFY and NORTH TRESEBURY have been in request at buyer's figures.—KITTY (St. Agnes) and ST. DAY UNITED are slightly better.—GREAT NORTH DOWNS, HALLENBEAGLE, and GREAT BREST are rather quiet, although some transactions have taken place.—WEST CHIVERTON have receded, and CHIVERTON appears firm at present prices.—EAST ROSEWATER are lower.

EAST WHEAL LOVELS have been done at lower rates, but show a strong tendency to improve.—SITHNEY and CARMEL are quiet, as well as all the newadvances in the important district.—GREAT WHEEL VORS have changed hands, but no material change in price.—EAST CARADON have been freely dealt in at quoted prices, but some fluctuations have since followed.—MARKE VALLEYS are enquired for at present quotations, but found rather scarce.—TRELAWNY and MARY ANN are more in demand, and several shares changed hands.—WHEAL CHERON and EAST RUSSELL have been in good request, with a little weak, being more freely offered.—NORTH DEVONS are in good demand, and a great many shares have changed hands at improved rates, showing a strong tendency for a further advance, arising from the great improvement which has taken place in the mine.—EAST CARADON: Although the new lode has fallen off in the 60 end west and 70 east there have been improvements in the counter and south lodes to the extent of fully 30% per fm. in the aggregate. The counter lode in the 60 east is worth 150 per fm.; the 70 east, 101.; the 80 east, 151., and the 80 west, 51.—NEW LODE: The 80 west is worth 80 per fm., the 85 west, 100 per fm., the 89 west, 110 per fm.; the 90 west is worth 65 per fm.; the other places are unproductive at present.—South Lode: The 70 east is worth 61., and the 70 west 35 per fm. The monthly sale of copper on rails is 7000 fms., and the 70 east 2000 fms. The monthly sale of lead on rails is 12000 fms., and the 70 east 4000 fms. The monthly sale of tin on rails is 1000 fms., and the 70 east 300 fms. The monthly sale of zinc on rails is 1000 fms., and the 70 east 200 fms. The monthly sale of silver on rails is 1000 fms., and the 70 east 200 fms. The monthly sale of copper on rails is 1000 fms., and the 70 east 200 fms. The monthly sale of zinc on rails is 1000 fms., and the 70 east 200 fms. The monthly sale of silver on rails is 1000 fms., and the 70 east 200 fms. The monthly sale of copper on rails is 1000 fms., and the 70 east 200 fms. The monthly sale of zinc on rails is 1000 fms., and the 70 east 200 fms. The monthly sale of silver on rails is 1000 fms., and the 70 east 200 fms. The monthly sale of copper on rails is 1000 fms., and the 70 east 200 fms. The monthly sale of zinc on rails is 1000 fms., and the 70 east 200 fms. The monthly sale of silver on rails is 1000 fms., and the 70 east 200 fms. The monthly sale of copper on rails is 1000 fms., and the 70 east 200 fms. The monthly sale of zinc on rails is 1000 fms., and the 70 east 200 fms. The monthly sale of silver on rails is 1000 fms., and the

I last week spoke of the GREAT LAXET, as amongst the mines upon which I long since fixed my attention, as promising great things, and recommended all my friends to purchase shares while they could get them. They were then at 4f.; last week they were at 16f. 10s., and this week they are still better. I again advise purchasing at the present price. So also of the GREAT SOUTH CHIVERTON, which was being opened with great promise. They have now, I learn, communicated the adit to the south shaft, and are opening upon the lode last discovered, a very fine east and west lode, composed of flocks, a good deal of mastic, and occasional spots of lead. As they proceed with the adit, the ground improves, and is more congenial for lead, and they are about to commence the sinking of another shaft, having completed some of the works at surface.

FOREIGN MINES.

SILVER MINING COMPANY OF NORWAY.—D. T. Macdonald, July 8: South Bamard: The vein has yielded fair scheids during the past week in the east level. We shall begin next week to stopes away the ground from the soi of the level, and at the same time resume the sinking of the gesamt, or shaft. We fully expect that the vein being now exposed to attack in a strong falbahn satisfactory results may be obtained in stopping the ground opened up by the east level.—Middle Bamard: The vein in this mine, and upon which the foregoing three bargains have been worked, has been for some time past poor; but I am glad now to be able to report that it is again yielding native silver, with every appearance of an improvement.—Neuer Glück: There is no change to notice in the character of the ground.—Stamps: We have stamped 34 tuns mair during the week, and this has yielded 11½ ozs. native silver, besides signs that the pump erected to pump back to the stamps the same water continually answers the purpose very well.

PONTGUAUD.—Capt. Rickard, July 15: Rouré: The engine at Richards's shaft works well, and the water is being forked from the 60 to the 80 metre levels. The 60 metre level, south of Richards's shaft, is unproductive. In the same level, south of 60, south of Agnes', yields ½ ton of ore per fathom. The 20, south of same shaft, yields 1 ton of ore per fm. The adit, south of Virginie's shaft, is unproductive. The stolen lode continues to yield stones of ore, but not in sufficient quantity to save. Our slopes continue to yield moderately. We have four in the back of the 60, at Richards's, in back of the 40, north and south of Agnes', one in back of the 20, south of the same shaft, and two in back of the adit and in back of the stolen.—La Grange: The vein in the 40, north of Nossey's shaft, maintains its size, and yields 2½ tons of ore per fm. The adit north of cross-cut is unproductive. Our slopes in back of the adit and 20 fm. yield well. There is no change in the adit west from La Ronconne.—Micôche: The 100 cross-cut east is in very hard ground. The cross-cuts east and west of No. 3 lode, in the 100 north, are in today ground, which shows spots of ore and blende. The rise in back of the 80 metre level, on No. 2 lode, opens tribute ground. There is nothing new in the adit cross-cut west.—La Brousse: The shallow level north of shaft yields a little saving work of good quality. We have to drive north of shaft, where the lode yields 1 ton per fm.—Pranal: The 70 fm. level north, on Susan's lode, is in productive ground. The 50 north, on the eastern part of the same lode, yields stones of ore. The same level, on the main part of the lode, opens tribute ground. The 30 north is poor, so also is the 8 fm. level, in the same direction. The winze sinking on the eastern part of the vein yields ½ ton of ore per fm. Our slopes and tribute pitches are about the same in value.—Surface: Our dressing goes on tolerably well, considering the supply of water, which is small. We have set the new crusher to work, which goes on very well.

VICTOR EMANUEL.—Thomas Roberts, Miggindone, July 15: In the slopes in the bottom of Falconer's level, the lode is 5 feet wide, worth 10f. per fathom. In the end of Thompson's level the lode is 4 ft. wide, yielding good stones of ore. In the old stops in the bottom of this level the lode is 5 ft. wide, worth 7f. per fm.—Clinton's Level: In a new stop in the bottom of this level the lode is 4 ft. wide, worth 9f. per fathom. All other points are without change. All the work connected with the water reservoir will be completed this week. We do not think it, however, advisable as yet to turn the water into it, but intend to let the mortar become firmer. The walls for the ore-house, on the crusher-floors, are nearly up. All materials for the completion of the new establishment, with the exception of a few rafters and some tiles for the ore-house, are at the mine. We have commenced stripping the ore to Genova: 64 tons of ore, in 150 bags, have been sent off this week; 40 more tons at the mine are already partly packed for shipment, and partly still to be ground: as soon as ground they will also be sent to Genova.—Bavona Mine: At this mine we have an improvement in the Cava Vecchia, in the 25 metre level. In driving north of this point the lode is now 5 feet wide, composed of quartz and stones of copper ore, and we think we shall soon have to report a rich discovery. In the 65 metre level, driving north of shaft, the lode is 2 feet wide, yielding good stones of ore. The lode in the slopes in the back of this level is 2 ft. wide, worth 10f. per fm. All other points are without change. In the new shaft the 35 metre level cross-cut west is now driven 20 metres from the shaft towards the lode. The last 10 ft. of this cross-cut have been in branches of spar, carrying spots of ore. Peeling the underlie of the main lode prove the same as at surface, we are not far from it. The slopes in the back of the Galleria Victor Emmanuel are in a lode 3 feet wide, worth 8f. per fm.—Surface Work: The winding-machine for the new shaft has been put up. We have yet some more work to do around the collar of the shaft, but hope to complete it next week. We have shipped to Genova during this week 477 bags, or about 30 tons, of first-rate ore.—Crotto Gold Mine: We are happy to tell you that we have forked and cleared the old shaft in this mine to the depth of 10 fms. under the adit. At this depth we have found a level, 80 metres long, going west from shaft. The level is standing, but is partly full of mud. In the end of the ground of this level we find a lode of seriferous ore, looking most promising. We purpose for the present to stop forking and clearing the shaft, and to clear the level. As soon as it is cleared, which will take about two weeks, we shall at once commence to break gold ore from this end. From what we see now we have not the least doubt but that there is a very good lode in the bottom of this mine. There is nothing now to be feared that can hinder us from reaching the bottom. The above-mentioned level standing open, the ventilation of the mine to its depth is good. The winze sinking on the new discovery is still producing gold ore, and looks kindly for further improvement. We have constructed a small number of native amalgamating-mills: they will be ready to work during this month, and during next month we hope to forward to the office the first remittance of gold from this mine, and to prove definitely the value of the ore.

THE VAL TOPPA.—July 16: The manager writes—I have the pleasure to inform you that I have this day forwarded to the office in the usual way a box containing another remittance of gold, in two ingots, weighing 2422 grammes, obtained from the amalgamation of the ordinary average ore. This quantity of gold, returned as the produce of last month, is a little less than usual, because the water at the mine has diminished very much, no rain having fallen for some time; we are, therefore, obliged at present to work with a smaller number of the native mills. This inconvenience will be overcome when the new establishment is constructed, as the water-power from the Aina is permanent and abundant for all purposes. The mine continues as rich as ever, and if we have a fall of rain we shall be able to make up for the deficiency of last month through increased produce of this month, which will be forwarded during August.

W. Harris, T. Roberts, July 14: The progress at surface since our last has been satisfactory. Underground, the tramroad in John Fisher's level will be finished in about a week from this date. After finishing this tramroad we shall construct another for the Marmo Rosso workings. The end of Marmo Rosso level continues to yield good gold ore. The discovery in back of Marmo Rosso level also continues rich; the lode is 9 ft. wide. All the slopes through the mine give their usual quantity and quality of gold for the mills. We have lately found more visible gold than usual.

VALLANZASCA.—July 16: The superintendent writes—Enclosed please to find the captains' report, from which you will see that we are doing all in our power to push the work. I am glad to inform you that fair progress is now being made. I have not smelted as yet the gold at the mine; I thought it better to wait until the end of this month, so as to make a larger remittance. We have now a considerable quantity of amalgam on hand. The mine continues to look well, and the quantity of ore discovered is enormous. All that is wanting to produce daily large quantities of gold is the machinery, but as the establishment will be one of the largest amalgamating works in the world, it requires, of course, time for its erection.

James Roberts, Thomas Roberts, Battiglio, July 12: Since our last we have been very much occupied in carrying on the necessary tramways and shoots. At the establishment we are getting on as fast as we can. We hope to get up the big wheel in the pit, and to get all the heavy shafting through the house in the course of one month. The crusher also will be ready to work by the end of August. In the course of next month we will report on the working of the new cast-iron bed mills, which are now about ready to be started. We continue to work a small number of native mills; their produce is the same as last reported, about ½ oz. of gold per ton of ore.

NOVA SCOTIA LAND AND GOLD COMPANY.—The directors have received by the present mail a remittance of 193 ozs. 1 dwt. 12 grs., produce of Sherbrooke and Oldham for the month of June. At Sherbrooke 50 tons quartz yielded 106 ozs. of gold, and looks very promising. The first lot of quartz produced 6 ozs. of gold to the ton, and the last lot just as good. At Oldham the Hall lode continues to run very irregular from the surface to the depth of 50 ft., at which depth from the shaft we are driving a cross-cut south, and have gone through what we suppose to be the Hall lode, showing some signs of gold, and within a distance of 4 ft. there are three other small lodes, all contained in one belt of slate, and the metals at that depth appear to assume a more regular form. I employed six men to open the lode at the surface a little further west, and I find there the same disturbance, but the lode is very rich in places. On account of not having water to crush with, we mortared by hand 55 lbs. of quartz, which gave 31 ozs. 19½ dwt. gold amalgam. We have about 20 tons of slate and quartz from this lode ready to crush.

CAGE COPPER.—Hondeklip Bay, July 3: I learn that the Conqueror sailed the 1st inst. with 540 tons of ore, and the Glenavon on the 25th ult., with 250 tons, leaving about 370 tons on beach, or little over the cargo required by the Simon, now discharging outward cargo in Table Bay. I have pleasure in informing you that we fully anticipate learning by the arrival of the next inland post from Mamaquoland that heavy rains have fallen in the district, as the letters last received were detained upon the road and were saturated with water. This will enable the farmers to commence ploughing, and an early commencement of the "pudding" season may be looked for. Capt. Clemons writes from Oskiep, June 11—"Oskiep Mine: No. 1 stop has produced by computation 129 tons of 33 per cent. crop ores, which, with a rough estimate of the dredge undressed and associated with other ores of similar class—say 15th of the crop, 15 tons, nearly 25 per cent., together 154 tons. In driving east from No. 1 shaft 11½ fms. have been advanced from shaft; extended for the month 13 ft. 6 inches. There has been no alteration in the character of the ground, consisting of compact felspathic rock, diffused with spots of ore and iron; and while such continues we have reason to hope, judging from past results, that we are proceeding over deposits of ore, the extent of which will be proved by a deeper level from No. 2 shaft, where sunk sufficiently deep. It is our intention to resume the sinking of this adit as early opportunity should we have a favourable rainy season it will impede its sinking, but in other respects will be of immense benefit to the country. We have driven a cross-cut north of the east level 9 fms. from No. 1 shaft. This has been extended 20 ft. 6 in., showing for this distance precisely the same nature of ground, diffused with spots of ore and iron, as from the latter portion of the drivage east. In driving the north-east level westward cross-cut 4 fms. have been extended through rich ore ground. In proceeding easterly from the hard, unproductive, granite rock named in my last, we find a continuous course of rich yellow ore, averaging 27 per cent. for crop ores. We find in advancing this altered direction that ores are falling back north, and resuming, as it were, the original position, which is a favourable feature towards the expansion of the express beds.

We have recently commenced a cross-cut south in the east level close by No. 1 shaft; this is producing some tolerably good grey stuff, mixed with quartz and felspathic rock: the object of this level, like the before-named cross-cut, has been to explore the breadth of the ore ground. I should tell you that the latter is suspended, it being situated near the extreme end of the east level. We shall not gain much valuable information by proceeding with this cross-cut for the present. In sinking No. 3 shaft we have sunk the whole time in the southerly end of shaft, hence we are apparently following down the boundary granite rock; I hope to have this shaft down to the western cross-cut, or very near thereto, by the end of the present month, should the ground not become any harder.—Western Trial Shafts: No. 1 has produced within the past fortnight some strong

yellow ore, being mixed with mastic and iron, and is, on an average, not of high quality, but is improving in quality and quantity as the shaft proceeds, the felspathic and quartzes rocks occurring in slightly inclined floors dipping easterly with the hill, which is also a favourable condition. Judging from recent results, I think I may fairly infer that we shall find the ores more concentrated in proportion to the depth attained: this seems a promising spot, but further explorations are needed to ascertain its true character. No. 2 trial shaft, sinking on the same metalliferous range of hills north, has produced a few pieces of rock containing spots of ore; some time will have to be devoted to the exploration of this before any decided result can be known. In Nahabep sloping north from the north shaft, and also south from same, ordinary quantities of ore stuff have been obtained as for the past two months. Nos. 1 and 2 levels are proceeding under the kops; the ground progress has not been so favourable.

At Spectacle Mine 82 cubic fathoms have been stopeled north of the incline, and the ore returned for the month, exclusive of seconds, 93 tons. This stopes has been producing very inferior stuff throughout the month, of first-class ores only in limited quantities, ordinary silicates of copper predominating over the sulphurites and oxides of copper. The sinking of the trial shaft below the bottom door has been through schistose rock 12 feet, and has produced at intervals some good faces of purple ore, mixed with yellow sulphurite; this latter is but rarely met with, though favourable in its character. At present the ground is darker in colour, and much harder than it has been, and containing considerably less ore. This shaft, if not interrupted by the dip of the granite close by, will, with the trial levels therewith, give a good exploration to this bottom floor.

SALES OF COPPER ORES.

COPPER ORES SOLD AT THE CORNWALL TICKETINGS FOR THE QUARTER ENDING JUNE, 1864.

Mines.	Tons.	Amount.
Devon Great Consols	6058	£32,955 1 6
Clifford Amalgamated	2852	14,223 14 6
South Caradon	1495	14,139 6 6
East Caradon	1480	9,265 0 6
West Bassett	1027	5,655 19 6
West Seton	902	5,114 4 0
Fowey Consols	790	4,895 1 0
Phoenix	1371	4,857 14 0
Wheal Seton	860	4,000 18 0
Marke Valley	1241	3,952 0 0
Great Wheal Busy	1298	3,755 9 0
Wheal Friendship	436	3,540 6 0
West Damsel	790	3,444 17 0
Carn Bras	635	3,417 19 0
Prosper United	903	3,126 10 0
Craddock Moor	518	3,026 14 6
Tywarhahile	840	2,929 15 6
East Carn Bras	655	2,910 8 0
Bedford United	600	2,657 8 0
Wheal Rose	419	2,645 9 0
West Caradon	234	2,207 19 0
South Tolgus	406	2,118 12 6
West Bassett	322	2,102 2 0
Par Consols	223	2,016 4 6
Rosewarne Consols	241	1,983 12 6
Great South Tolgus	200	1,771 17 6
Copper Hill	330	1,726 3 8
Hington Down	442	1,711 4 6
North Tresekerry	344	1,588 11 0
North Roskar	194	1,545 13 6
East Pool	513	1,430 4 0
East Bassett	182	1,410 12 0
East Rosewarne	155	1,374 18 6
New Wheal Martha	679	1,348 8 6
Wheal Margery	380	1,327 5 6
Great North Downs	279	1,326 7 6
Devon and Cornwall	520	1,295 5 0
South Frances	231	1,291 6 6
Pendean Consols	195	1,229 0 0
Brookwood	295	1,223 12 0
Boscawen	327	1,218 16 6
Treloweth	175	960 17 0
Levant	201	937 19 6
Polmear	145	910 7 0
East Russell	224	909 14 0
New Rosewarne	103	806 19 6
Tolvaddan	168	796 12 6
Tolcarne	177	793 12 6
Rosewarne United	139	715 1 6
West Tolgus	109	673 14 6
North Downs	125	672 17 0
Glasgow Caradon	170	630 7 0
Gunnis Lake Clitters	90	605 5 0
Okei Tor	166	587 12 6
West Fowey Consols	70	586 5 0
Wheal Butler	110	563 19 6
Dolcoath	112	552 4 0
North Robert	126	546 1 0
Wheal Crebore	123	469 12 0
Wheal Uny	86	447 10 0
East Wheal Ellen	102	434 7 0
Wheal Emma	140	431 3 0
South Dolcoath	39	395 15 6
Botallack	65	388 9 6
Nanglies	78	375 13 0
Wheal Grenville	57	358 8 6
Gonamena	72	355 14 6
Furdon	90	354 19 0
Sorbridge Consols	80	352 9 6
North Crofty	97	353 5 0
Charlotte United	139	336 9 6
Wheal Anna	55	269 10 0
South Crofty	71	258 15 6
St. Day United	88	244 7 0
Wheal Arthur	105	241 15 0
Yarner	92	234 12 0
Eliza Consols	28	234 10 0
New Treleigh	86	231 15 0
South Crinnis	31	21

CWMBRANE.—J. Kemp, July 21: The lode in the stopes in the back of the 50, south of shaft, is looking very well indeed; I think the lode looks better here than in any of the upper levels. We are getting ready as fast as possible to resume the 50 fm. level south; we have a nice bunch of lead gone down in the bottom of the 40 fm. level, a few fathoms ahead of us, which we hope to cut in the 50 shortly. The stopes in the back of the 40, south of shaft, is looking very well. I have removed the three men who were working at the north winze, between the 30 and 40, as I am entirely baffled as to where the bunch has been thrown; the men have broken some good stones of lead in this place, but I cannot find the slide, although I feel confident it must be here somewhere. I have put the two men to work in the back of the 10, north of shaft, where they are getting some good stones of lead; there is a large piece of ground here unexplored; the stopes in the extreme end of the 10 fm. level are poor; at present the 30 cross-cut is being driven with all speed; the ground is favourable, but we have seen no lead as yet; we have a great quantity of iron on the floors, but cannot wash, in consequence of our being short of water. Everything is progressing satisfactorily, and I think, on the whole, things are looking favourable.

CWMSYMLOG.—A. Williams, July 12: The 15 fm. level cross-cut, north of Reed's shaft, is being pushed on with all speed; the ground is a little more favourable for progress than it has been for some time. In the stop 15 fathoms east of Pugh's shaft the men continue to open out some good ore ground. The lode appears to be very well at this point, consequently it will take us a few weeks more to cut through it.

DALE.—R. Nines, July 21: The vein continues to improve as we go northward. The vein in the rise south of shaft continues to yield well.

DARREN.—H. Williams, July 20: There is nothing new in the 15; we continue to drive by six men, and the progress is fair. The men in the 10 are clearing the adit, and filling the gullies at a good rate; there is a fair prospect of this being completed by the end of the month.

DOLFRWYNOG.—C. W. Seccombe, July 18: The lode in the stopes in back of No. 5 level continues about the same course and size as mentioned in my last; I should have tried some quartz from this place by the middle of the week, if I could have had water to drive the stamp wheel. There is no alteration in the appearance of the alluvium yet.

EAGLERBROOK.—H. Tyack, July 19: Since we have had sufficient water for working our machinery, and after having drained the mine to the bottom, our 30 fm. level west has been extended about 2 fms. 3 ft., the lode through that distance being about 4 ft. wide, composed of mudi, white spar, and blende, with stones of lead, but is not so productive for lead ore, as when I last reported, in the vein. The weather continues very dry, and if we do not get a change soon, I fear that we shall be again hindered for the want of surface water to work our machinery.

EAST BRONFLOYD.—Andrew Williams, July 12: The 25 fm. level cross-cut, north of shaft, is progressing satisfactorily. No change in the character of the lode since my last; but the water in the end has increased considerably.

EAST CARADON.—James Seccombe, July 20: Caunter Lode: The 60 east is worth 150 per fm.; the 70 east is worth 160 per fm.; the 80 east is worth 180 per fm.; the 80 west is worth 80 per fm.—New Lode: The 60 west and 70 east are unproductive; the 90 west is worth 80 per fm.—South Lode: The 70 east is worth 60 per fm.; the 70 west is worth 350 per fm.

EAST CARN BREA.—T. Gaville, J. Scholar, July 20: In the 60, driving west of the cross-cut, the lode is producing 5 tons of ore per fm. In the 60 east the lode is producing 2 tons of ore per fm. In the winze sinking below the 40 the lode is producing 1 ton of ore per fm. In the 60, driving west of cross-cut, on new lode, the lode is producing 2 tons of ore per fm. In the 60, driving west of cross-cut, on new lode, the lode is producing 3 tons of ore per fm.; and the 60 east producing 1 ton of ore per fm. In the 26 west the lode is producing 1 ton of ore per fm.

EAST CHIVERTON.—J. Nancarrow, July 20: Our sumpmen are getting on favourably in sinking the engine-shaft below the 35 fm. level. The eastern end, on the south lode, is of a harder character than ever, and letting out more water, composed of mudi and blue slide, about 18 in. wide, and in a good country for lead; there is even one side of this lode and blue killas the other, which we call congenial for lead in this district. The north lode is something larger than it has been. The north cross-cut is still improving for driving, and the character of the country as well, letting out more water than for some months past. The lode in the adit is looking better again.

EAST GUNNIS LAKE AND SOUTH BEDFORD.—Jas. Phillips, July 21: No. 1 slope, in back of the 40, is yielding 3 tons of ore per fm. No. 2 slope, in back of the same level, is yielding 3 tons per fm. No. 3, east of the incline, and in bottom of the 36, is yielding 3½ tons per fm. No. 4 slope, in back of the 36, is producing 3 tons of ore per fm. No. 5 slope, in back of the 36, is producing 6 tons per fm. The men are making good progress in bringing down Gard's shaft to the full size on the part risen on. There is no alteration in the 12 fathom level, east of Gard's shaft. In the deepadit we are driving by the side of the ore part of the lode. We shall sample a fair parcel of ore this month.

EAST JANE.—Jas. Seccombe, July 21: The ground in the western shaft continues very favourable for sinking in. In the 26 south the part of the lode now being carried is 4 ft. wide, yielding about 4 cwt. of lead per fathom. In the same level north it is letting out more water, and producing dressing work for lead. The stopes in back of this level are yielding on an average 5 cwt. of lead per fathom. The ground in the 26 cross-cut is without alteration, and no lode has yet been intersected. The machinery is now going on well. We shall sell to-morrow 12 tons of lead ore, for which we anticipate a good price.

EAST PROVIDENCE.—T. Uren, Wm. White, July 20: The 60, east of junction, on Bamfield's lode, is worth 80 per fm. The stopes in bottom of the 60 is worth 200 per fm. The winze sinking below the 60, on Bamfield's lode, is worth 250 per fm.

EAST ROSEWARNE.—J. James, July 21: At Hallett's shaft the lode is small and poor; I expect an improvement here shortly. In the 75 east the lode is improving, now 2 feet wide, worth 200 per fm. In the winze sinking below the 65, west of Hallett's, the lode is 1 foot wide, worth 140 per fm. In the 65, west of sump-winze, the lode is 10 in. wide, worth 120 per fm. At King's shaft the lode is 14 in. wide, worth 160 per fm. In the 55, west of King's, the lode is 10 in. wide, worth 90 per fm. Our stopes and tribute pitches are without change to notice.

EAST WHEAL ELLEN.—J. Garland, T. Corfield, July 20: In the deep adit end, driving east of Pryor's shaft, there is no change to notice. We have suspended No. 1 slope for the time, and have put the men in Nos. 2 and 3 stopes, where the lode is looking very kindly—particularly in No. 3; they will produce respectively 1½ ton and 2 tons of copper ore per fm.

EAST WHEAL FLORENCE.—W. Verran, July 21: We have sunk the engine-shaft nearly 4 fms., in a large and promising lode, containing mudi, gossan, and some spots of black oxide of copper; there is a beautiful light blue flockan on the footwall, and the lode altogether is about 6 ft. wide. In driving east towards the above-named shaft we have already had some fine stones of copper ore, and, judging from the present appearance of the end, we are likely to raise quantities of ore above the adit level, which is about 12 fms. from surface, and is the depth at which this level is being driven. The pitch above the adit, west of the trial shaft, on Knowling's lode, is producing ore in sufficient quantities to afford the tributors good wages at 10s. in 12. On the whole, the mine is looking better than at any previous period, and will soon tell its own tale.

EAST WHEAL GREENVILLE.—G. R. Odgers, Wm. Bennettts, July 16: This week we have divided and cast the engine-shaft from the 65 to the 75. I hope to make good progress in the 75, both east and west of shaft. The lode in the 65 west is from 4 to 5 ft. wide, and yielding 6 tons of ore per fm.; this is a splendid lode. The lode in the rise above the 65 west is from 4 to 5 ft. wide, producing 7 tons of ore per fm. We have no change to report in the 55 west, but from the appearance of the ground, &c., we are of the opinion that this level is skirting the top of the ore.

EAST WHEAL GREENVILLE.—G. R. Odgers, Wm. Bennettts, July 20: The lode in the 75 east is 18 inches to 2 feet wide, producing stones of ore. The lode in the 65 east is split. In the 65 west the lode is from 5 to 6 feet wide; it is not quite so easy as it was, worth 8 tons of ore per fathom, and presenting a fine appearance. The lode in the rise above the 65 west is from 4 to 5 ft. wide, composed of spar, quartz, iron, producing saving work, and promising to improve. In Barkell's winze, sinking below the 120, the water became so powerful that the men could not keep it under; therefore, the sinking is suspended for the present. The men will be put to rise against the winze in the back of the 130 as soon as convenient. In Barkell's rise, in back of the 120, the lode has fallen off in value; now worth 40 per fm. The lode in the 45 east is from 2½ to 3 ft. wide, composed of spar, quartz, and prian, and producing a little copper ore. The lode in William's cross-cut, driving north in the 80, west of Hitchins's engine-shaft, is a little improved.

EAST WHEAL TOLGUS.—July 20: The lodes in the 34, east of John's shaft, is 20 in. wide, consisting of spar, peach, and mudi, with spots of copper ore. The ground in the 54 cross-cut is not so hard as it was. In the adit level, east of the new shaft, the lode is 2½ ft. wide, composed of spar, mudi, and gossan; the same remarks will apply to the lode in the adit level west. The ground in the adit cross-cut south is easy.

FOWEY CONSOLS.—F. Puckey, C. Merrett, G. Job, July 18: Bottrell's Lode: In the 280, east of Bottrell's shaft, we have cut through the cross-course and intersected the lode, but being still under the influence of the cross-course the lode is disordered and poor.

The lode in the winze sinking below the 270 east is 3½ ft. wide, and worth 150 per fathom.

Trathan's Lode: In the 270, east of Bottrell's shaft, the lode is 2 ft. wide, producing saving work, but not sufficient to value it.

Hewett's Lode: In the 220, west of Union shaft, the lode is disordered and poor.

The lode in the winze sinking below the 220, west of Union shaft, the lode is 2 ft. wide, composed of spar, quartz, and prian, and producing a little copper ore.

All other parts of the mine are without alteration.

GAWTON COPPER.—G. Rowe, July 16: All our operations of the new engine-shaft, both at surface and underground, in fixing plunger-lift and erecting the necessary plant, caps, shears, &c., are being prosecuted with all possible vigour, and will be made complete as soon as the nature of the work will admit.

Glasgow CARADON.—W. Taylor, July 19: In the 52 west the lode is large, and has a good appearance, worth about 200 per fathom, but rather slow for progress; I am daily expecting it to get speedier and further improved. No change of importance to notice in the 52 east. The stopes are producing their usual quantities of ore. We have cut a branch or lode in the 65 south, producing good stones of ore; it has improved from what was seen in the 52, which looks favourable for the caunter when cut at this level; we are pushing on the cross-cut to the latter as fast as possible. We are getting on with the dressing of the ores for the next sampling as speedily as possible.

GOGGINAN.—July 19: The lode in the 100, east of Giberton's shaft, is 6 feet wide, yielding 1 ton of lead ore per fathom. The lode in the 80, west of Bryn Pica shaft, is 5 feet wide, producing good stones of ore at times. Nothing of any importance has been met with in the 60, or deep adit level, west of Bryn Pica shaft; water is still coming out of the end. The lode in the 70, west of Bryn Pica shaft, is 4 feet wide, containing a

little ore. The pitch over the 100, east of Taylor's shaft, is yielding 10 cwt. of lead ore per fathom.—Level Newydd: The lode in the 60 west is 4 feet wide, producing 18 cwt. of lead ore per fathom. The lode in the 60 east is 5 feet wide, yielding 14 cwt. of lead ore per fathom. The lode in the rise above the deep adit level, east of engine-shaft, is 4 feet wide, containing a good deal of blende and a little lead ore. We shall resume the sinking of the engine-shaft at this part of the mine in about 10 days or a fortnight.

GREAT BRIGAN.—J. Tredinnick, July 16: The lode in Highburrow shaft, sinking below the 45, is poor, but letting out more water; the ground is just the same for sinking. In the end driving west of the above shaft, at the 33, the lode is 2 ft. wide, with spots of ore, but not to value. We have 3 fms. further to drive to get under Scammell's shaft, after which we shall rise to hole for ventilation. In the cross-cut driving south, west of Highburrow shaft, the ground is a little easier for driving. In the cross-cut driving north, east of Ebor's shaft, the ground is favourable for driving. We have cleared down the level on the south part of Brigant's lode, east of Ebor's shaft, and set a winze to sink below the 20. In the cross-cut driving south from east boundary shaft, at the deep adit level, the ground is moderate for driving, and we hope soon to reach the lode. In the new shaft, sinking below the shallow adit, the ground is favourable for progress, and are making good progress.

GREAT NORTH DOWNS.—W. Crase, M. Jenkin, July 16: At Vivian's part of the mine the appearance and value of the different bargains continue as reported, except the 57 end, driving east of Jenkin's shaft, where the lode has improved; at present it is 2 ft. wide, driving west of fm. 150, and looking very promising. At Sleggan's shaft the men will complete the casing to the bottom to-day, and will commence cutting plat on Monday next. King's boundary shaft will be put in proper order for drawing to the 75 early in the ensuing week, when we shall resume the driving west. The lode in the winze sinking below the 57, west of said shaft, is worth 10d. per fm. The lode in the 57 end, driving west of the latter shaft, is 4 ft. wide, producing stones of copper ore, and has a more promising appearance; the ground is also better for sinking.

GREAT SOUTH CHIVERTON.—J. Nancarrow, J. George, July 16: Having communicated the adit to the south shaft, we are now opening on the lode; it is a very fine east and west lode, composed of flockan, friable quartz, a great deal of mudi, and occasional spots of lead; it presents a most encouraging appearance for a rich lode in depth. We shall shortly commence to sink another shaft; the ground is improving as we proceed with the adit, and more congenial for lead. The carpenters' shop and saw-house are completed. The more we see of the lodes the more confidence we feel in the future progress of this property.

GREAT SOUTH TOLGUS.—J. Daw, July 20: In the 154, east of cross-cut, on the south part, the lode is 4 ft. wide, producing 3 tons of copper ore per fathom. In the 154, west of cross-cut, the lode is 1 ft. wide, producing 1 ton of ore per fm. In the 154, west of Lyde's shaft, the lode is worth 20d. per fm. for tin.

GREAT WHEAL BADDERN.—J. Hampton, J. Jenkin, July 16: Hill Brothers Shaft: The water was in fork on Monday, when we commenced to drive the cross-cut north, to intersect the lead lode, by eight men, at 280s. per fm., stoned 10 fms.; we intend to push this point with all speed. Our tribute settings vary from 10s. to 1s. in 17. The produce of the tinstuff in the upper levels did not turn out so well as we expected last month. The parcel of tin sold this week nearly all came from the 25. We have set more tribute at this level to-day, and believe it will increase our next sale. The water in the western mine is not so much since the eastern engine has been at work; we think it will be still less, and no doubt ease the consumption of coals at the stamping-engine this month.

GREAT WHEAL BUSY.—John Edwards, J. Petherick, J. Tredinnick, C. Bawden, July 16: There is no change to notice in Harvey's engine-shaft or in the 140 east and west during the past week. The lode in the rise against Fielding's shaft, in back of the 140, is 3 ft. wide, and worth full 17d. per fm. for tin. No lode taken down in Oxford's shaft for the past week; the ground is a little more favourable for sinking. The lode in the stopes in bottom of the 130, east of Oxford's shaft, is worth from 35d. to 40d. per fm. for tin and copper ore. The lode in the 130, driving east of said shaft, is 1 ft. wide, unproductive. No. 1 slope, in back of ditto, is worth 12d. per fm. for tin and copper ore. The lode in No. 2 slope, east of ditto, is worth from 25d. to 30d. per fm. for tin and a little copper ore. The lode in Matthew's shaft, sinking below the 110, is 18 in. wide, producing stones of copper ore, but not sufficient to value. The lode in the 110, driving east of said shaft, is producing a little tin, but not sufficient to value. The lode in the 70 end and slope, east of Matthew's shaft, are worth from 10d. to 12d. per fm. for tin and copper ore.

GRYLLS WHEAL FLORENCE.—Ed. Rogers, E. Rogers, July 19: The engine-shaft is sunk 3 fathoms below the deep adit. In the cross-cut driving north in the adit level there is no alteration worthy of notice. In cross-cutting south in the 19 the ground is favourable for exploring; present price for driving 12. 10s. per fm. At surface the engineers are getting on very well with fixing the engine. The masons are engaged building boiler-houses, flues, &c. A part of the pitwork is on the mine.

GREAT WHEAL YOR UNITED.—Thomas Gill, July 18: I was underground to-day, and examined every point throughout the mine very carefully, and I found them as follows:—In the 100, driving west of Ivey's shaft, we have a lead about 2½ ft. wide, and very wet, but poor for mineral; but it is a very kindly lode. In the 147, driving east of Ivey's shaft, the lode is about 1½ ft. wide, worth from 70f. to 80f. per fm. In the 147, driving west of Ivey's shaft, the lode is 2 ft. wide, yielding good stones of tin; the lode and stratum shows good indications for an improvement. In the 157, driving east of Ivey's shaft, the lode is still disordered by the slide, but the end is yielding good work for tin. In the 147, driving west of Ivey's shaft, the lode is about 2½ ft. wide, and very good kindy lode. In the 147, driving west of Ivey's shaft, the lode is 2 ft. wide, and very good. In the 157, driving east of Ivey's shaft, the lode is still disordered by the slide, but the end is yielding good work for tin. In the 147, driving west of Ivey's shaft, the lode is about 2½ ft. wide, and very good kindy lode. In the 147, driving west of Ivey's shaft, the lode is 2 ft. wide, and very good kindy lode; this end will open up a great deal of new ground. In the 174, driving east of Metal shaft, the lode is 6 ft. wide, and a very good kindy lode; it is worth from 80f. to 90f. per fm., and looks promising to continue. In the 174, driving west of Metal shaft, the lode is about 1 ft. wide, and yielding good stones of tin. In the 184, driving east of Metal shaft, the lode is about 1 ft. wide, and yielding good stones of tin. In the 184, driving west of Metal shaft, the lode is 1 ft. wide, and a very good kindy lode. We have not done sufficient in these levels to give you the real value of them. The lode is looking well, much better than we had it in the levels above over this point. In the winze sinking below the 174, east of Metal shaft, the lode is about 18 in. wide, solid within 18 in. of the turf, and raised scores of tons of lead to there a great profit, till it was driven out by the increase of water." As far as I can see it will cost over 300/- to clear it, as the old open cut coming into it, and which is over 40 fms. long, is choked, and must be cleared before the water can be drawn out. The other shaft you refer to is on the south-east and west lode, at or about the junction of Owen's north and south lode, it is sunk from the shallow adit, and the man Owen, who worked there, says—"I worked there from the surface, where we had lead 18 in. wide, solid within 18 in. of the turf, and raised scores of tons of lead to there a great profit, till it was driven out by the increase of water." As far as I can see it will cost over 300/- to clear it, as the old open cut coming into it, and which is over 40 fms. long, is choked, and must be cleared before the water can be drawn out. The other shaft you refer to is on the south-east and west lode, at or about the junction of Owen's north and south lode, it is sunk from the shallow adit, and the man Owen, who worked there, says—"I worked there from the surface, where we had lead 18 in. wide, solid within 18 in. of the turf, and raised scores of tons of lead to there a great profit, till it was driven out by the increase of water." As far as I can see it will cost over 300/- to clear it, as the old open cut coming into it, and which is over 40 fms. long, is choked, and must be cleared before the water can be drawn out. The other shaft you refer to is on the south-east and west lode, at or about the junction of Owen's north and south lode, it is sunk from the shallow adit, and the man Owen, who worked there, says—"I worked there from the surface, where we had lead 18 in. wide, solid within 18 in. of the turf, and raised scores of tons of lead to there a great profit, till it was driven out by the increase of water." As far as I can see it will cost over 300/- to clear it, as the old open cut coming into it, and which is over 40 fms. long, is choked, and must be cleared before the water can be drawn out. The other shaft you refer to is on the south-east and west lode, at or about the junction of Owen's north and south lode, it is sunk from the shallow adit, and the man Owen, who worked there, says—"I worked

WHEAL UNITY CONSOLS.—Wm. H. Reynolds, July 19: In the 60 west the lode has a much better appearance than we have seen it since we were at the 30, where we had some good copper ore, but much mixed up with iron, which injured its quality. We have now a strong lode, and to a great extent free from iron; in places it yields good work, and in driving the last 5 fathoms we have broken 3 tons of copper ore. In the 40 west the lode looks promising. Nothing is yet cut in the cross-cut, but in that driving south we have some muriatic, and the joints stained with copper.

WHEAL UNY.—S. Coade, M. Rogers, July 16: The lode in the ends and shafts on the tin lode is much the same as reported last week. There is no change of importance in the copper lode.

YARNER.—R. Barkell, July 20: The 40 east, on north lode, has improved very much since yesterday; the lode is now 3½ feet wide, well defined, and worth over 2 tons per fathom, with every appearance for a further improvement shortly; the end is now extended about 4½ fathoms from the shaft, where we expect to cut the shoot of ore gone down in the bottom of the 30. The 30 east, on south lode, is looking rather better; the branch is 10 inches wide—ore and peat. There is no change in the stope in the back of this level, and the same remark will apply to the stope at the 40 and 50. We are making good progress in driving the adit towards the new shaft; it is now in about 8 fathoms.

WORKAS DOWNS.—Richard Harry, July 20: The lode at Basfield's flat-rod shaft continues much the same as when last reported on—very promising, and the ground by the side is of the best description for the production of tin ore. We are actively engaged in erecting a horse-whim at this shaft, which will be completed, and set to work with as little delay as possible. First shaft, sinking below the surface, on Wheal Nicholas lode, is producing some good work for tin. In the western end of this shaft the lode is looking very well, being composed of capel, peach, quartz, and tin, worth 6s. per fm., with every indication of further improvement.—South Lode: In the 10, driving east of the cross-cut, there is a kindly lode, 12 in. wide, yielding good stones of tin—saving work. On the whole, our prospects are encouraging, and we consider there is no better mode of arriving at profitable results than by proving the various points contemplated and now in operation with spirit and energy.

THE TIN MINES OF CORNWALL.

The time has arrived, I think, when some steps should be taken to bring about, if possible, a better plan or system than now exists for the sale of the tin ore produced in the tin mines of Cornwall; and, if possible, to blend our interest with the tin smelters, to prevent the sudden fluctuations which now take place in this great staple commodity of the county. For as business is now conducted the miner gets nothing; and the smelter also complains, and yet admits that a better price could as well be paid for the ore, which better price the mines now absolutely require. This you will agree with me in, when I tell you that tin ore cannot be raised from a large majority of the mines under 70s. to 75s. per ton. With these prices very little profit would be left for the adventurer. What must it now be with the price about 60s. per ton? The question, then, resolves itself into this—How can a better price be obtained?

At the request of a large number of gentlemen interested in the tin mines of Cornwall, I have consented to allow my name to appear at the bottom of this communication, in order to elicit the views of practical men on a subject which is now becoming very important, and requires serious consideration in order to arrive at some definite step being taken. I, therefore, shall esteem it a very great favour to receive communications on this subject from the representatives of the tin miners of the county, either by letter or in person; in fact, a hint from any gentleman will confer a favour. I need hardly say that all such communications will be treated as strictly confidential, unless otherwise wished.

I previously mentioned the word important, and that it is so I think you will admit, when I tell you that about 15,000 tons of tin ore are annually raised from our tin mines in the county, representing a revenue of over 1,000,000s. sterling.

I do not hesitate to affirm that, after deducting the working expenses, not more than about half-a-dozen tin mines leave any profit to the adventurer; and what would these profits be in the shape of a percentage on the capital invested in the tin mines working in the county of Cornwall. I, therefore, hope you will concur in my opinion that the time has now arrived when this question should be thoroughly ventilated.—WILLIAM TEAGUE: *Tincoffet Mines, Redruth, July 20.*

THE TIN STANDARD.—No further change has taken place in the tin standard, which remains as last reported—common, 96s.; 97s.; refined, 99s., 101s. There is, however, a better feeling in the trade, and a general impression prevails that no further reduction in the standard is at present contemplated. Messrs. E. L. Budd and Co. report that "since the reduction of English tin there has been a good demand, and the market is firm." The present price of Straits being so much below the average for the last ten years, and so much under the original cost, has induced some large purchases for investment, and the market appears steadier than for some time past."—*West Briton.*

MINING NOTABILIA.

[EXTRACTS FROM OUR CORRESPONDENCE.]

GOLD IN WALES.—A very interesting discovery of gold has just been made at the Welsh Gold Mining Company's Mines, near Dolgelly. In cutting a lobby, or entrance to an adit, an ancient channel, or "gutter," descending the mountain side, was intersected. The gutter was filled with the diluvium washed down from the mountain; and out of this diluvium, within a very short space, several boulders of quartz were taken, one of which, weighing less than 1 cwt., yielded the astonishing quantity of 18 ozs. of gold, or at the rate of 360 ozs. of gold per ton. The smaller stones averaged 60 ozs. per ton. As the traces of several other diluvial gutters have been found, leading down from the back of the great gold lode into the valley beneath, the Welsh Gold Mining Company are about to make a thorough examination of those localities, as they promise to be as productive as any in California or Australia.—ARTHUR DEAN: *Dolgelly.*

The information from the VIGRA AND CLOGAU MINES is to the effect that the appearances in the deep workings are extremely promising, the expectation being that a rich deposit of visible gold will soon be opened upon. It is stated as the reason the returns are at present so small, that the operations are being mainly directed to the opening up the mines preparatory to the working of the large steam-engine, now in course of erection.—The works at the CAMBRIAN MINES are progressing satisfactorily, and it is confidently expected that in a short time the operations will be extended under the shoot of gold worked in the upper adit.

NORTH JANE.—The lode recently discovered, and now working on at Railwayshaft, is in the western part of the sett, adjoining Wheal Jane. Nothing having been done in this part of the sett during the past two years, the present operations are most favourably entertained by the local adventurers, and very satisfactory results are anticipated.

WEST CLIFFORD UNITED MINES.—Operations at these mines have commenced in good earnest; the engines are contracted for, the masons work all set, and rapid progress is now making, and it is fully anticipated that within three months both the engines will be at work. The opening afresh these old mines has created quite a sensation in the neighbourhood, as its continuity to the rich mines in the district secures for this property the opinion that valuable results may be expected very soon.

NORTH DEVON (Silver-Lead).—The caunter lode still maintains its value. This is the most important discovery yet made in this mine. No other lead mine in Cornwall or Devon can boast of a lode worth 140s. per fathom. Great excitement exists at the mine, as also at Newbury, where the offices of the company are, and where most of the shares are held. Applications are pouring in for shares, but they are not to be had, all are firm holders; and, although a great rise has taken place, a far greater is expected. The agent says he is getting on well towards the next sampling.

NORTH WHEAL SETON.—A steam-engine is to be erected here without delay, when the Wheal Seton lodes will be prosecuted in depth. At Wheal Seton and West Seton a depth of 60 fms. below the adit had to be reached before the lode became productive for copper ore, and in North Seton the indications are of a very similar character. The sett is of great size, and allows of operations being carried on when necessary in several places at once. A large elvan-course traverses the sett, and two of the lodes are most favourably situated in connection with it. In all probability large deposits of copper ore will be found at and near the intersections.

WHEAL PRUDENCE.—It is highly satisfactory to know that the objects intended to be accomplished at the starting of this mine are perseveringly being carried out. The cross-cut under the sea, to intersect the lodes of the Great St. George, has been driven through the first elvan, and is now nearly through the second elvan, after which the mineralised strata will soon be reached. The first lode expected to be cut is the Meadow lode, which, however, is of secondary importance. But the Great St. George main lode when intersected will, no doubt, be of extraordinary richness and magnitude. In Great St. George this lode alone, independent of the side lodes, has yielded 50,000s. worth of copper ore per month, and left immense profits to the fortunate shareholders. The operations are being pressed on with vigour. The plant is powerful and effective, and there can be no doubt of the ultimate success.

HALLENBEAGLE.—In the 40 fm. level there is a course of ore reported to be worth 50s. per fathom. A pair of tributaries, working a pitch in this level, have opened a lode 3 ft. wide, said to be solid ore. On Thursday, rocks of sulphur of copper were broken, each weighing 3 to 4 cwt. Although the tribute is only 3s. 6d. in 12., the men are likely to make a large sum of money. It is confidently expected that when the engine is erected this mine will soon be brought into a remunerative condition.

AT HINGTON DOWN CONSOLS the lode is holding down well below the 110 fm. level, as also continuing in the 110 end, thereby establishing two important points for the future welfare of the mine. The sale this week has realised 2640s., with carriage, and left a profit of nearly 800s. upon the two months' working.

THE COAL TRADE IN AUSTRALIA.—The directors of the Australian Agricultural Company, in their report for the meeting on Tuesday next, give the following particulars respecting their coal operations in 1863.

The quantity sold was 72,480 tons, which realised 37,281s. 2s.: the general cost and charges were 35,450s. 1s. 10d., showing a profit of 13s. 7s. 2d., or 6d. per ton. As compared with 1862, these tables show the following results, as given in the superintendent's report:—An increased sale of 9284 tons, a diminution in the average cost of 1s. 1½d. per ton, a falling off in the average selling price of 2s. 0½d. per ton, and a diminution in the average profit of 11½d. per ton. The total outlay for new works on the colliery amounted in the past year to the large sum of 10,778s. 12s. 2d.; of these, the principal is the new bridge, on which 5549s. 2s. 7d. was expended. Advice for the first four months of the present year are very satisfactory. In April the coal trade revived, the returns for that month showing a vend of 11,265 tons, which is considerably in excess of any month's vend since Jan., 1861; prices were very firm, and the diminished cost leaves a fair profit on the trade.

DICTIONARY OF CHEMISTRY.—The July number of this Dictionary extends to "Iron, detection and estimation of iron." The number is chiefly occupied by an elaborate article on Iron, by Dr. Paul; the matter which

precedes it being the conclusion of the article on Iodine and its compounds. Dr. Paul's article contains an admirable epitome of all that has been made known upon the chemistry of iron, and forms an invaluable index to those works wherein the subject has been exclusively treated.

MINERS' ASSOCIATION OF CORNWALL AND DEVON.

We learn from the "Table of Results of Examination in Science Classes, May, 1864," just issued by the SCIENCE AND ART DEPARTMENT, that the following students of the classes of the Miners' Association have passed:—

MINERALOGY.

1.—BAWDEN, SAMUEL, miner, St. Day.
2.—CORFIELD, THOMAS, miner, St. Day.
3.—BAWDEN, WILLIAM, miner, St. Day.
4.—BLIGHT, JOSEPH, miner, St. Day.
5.—CHICK, HENRY, miner, Gunnis Lake.
6.—LANGDON, SAMUEL, miner, Gunnis Lake.
7.—RICHARDS, THOMAS, miner, Gunnis Lake.

INORGANIC CHEMISTRY.

1.—QUENTRAL, THOMAS, miner, Helston.
2.—HOWE, JOHN, accountant, Helston.
3.—ADAMS, ANDREW, tin dresser, Helston.
4.—LANGDON, SAMUEL, working miner, Gunnis Lake.
5.—RICHARDS, GEORGE, working miner, Gunnis Lake.
6.—RICHARDS, THOMAS, working miner, Gunnis Lake.
7.—COOK, HENRY, working miner, Gunnis Lake.
8.—DOWNING, THOMAS, smith, Helston.

Three classes only—those of Helston, St. Day, and Gunnis Lake—were in a position to avail themselves of the privilege of these examinations, owing to their not having received the full forty lectures required by the Department. We hope arrangements will be made by the Executive Council of the Association by which this difficulty may be overcome, and the advantages secured to a larger number of classes next year.

ST. JOHN DEL REY.—By the advices, which appear elsewhere, it will be seen that Mr. Gordon, the company's superintendent, communicates the satisfactory intelligence "that he hoped to resume active operations in the Bahia Mine by the beginning of the present month." Upon the receipt of the telegram, announcing that the operations during May had resulted in a loss, a decline of 3s. per share took place, but it no sooner became known that the cause of this loss could be satisfactorily explained in the advices received, and that active operations in the Bahia Mine had probably been recommenced, than the shares experienced a considerable advance, amounting to as much as 7s. and 8s. per share. When it is recollect that in consequence of the accident which took place some months since, the most valuable part of the Bahia Mine has been inaccessible, and that of the 5158 tons of stone treated in the stamp during May no less than 3200 tons consisted of rejected killas, the result of the month's operations cannot be considered as altogether unsatisfactory, for, as Mr. Gordon states, "the produce is only the result of an unfavourable partial working of the mines, while, at the same time, the cost is unusually heavy by the large consumption of timber in the mines." There can be no question that a large outlay has been incurred in rendering this valuable Bahia Mine perfectly safe for future operations, but as there is every reason to believe that active operations were resumed therein at the beginning of the present month, it is not too much to hope that from that date the same largely remunerative returns will be made that have for so long a period characterised this company's successful operations. It may be mentioned that at the time of the accident the shares commanded a market value of about 50s. per share, since which they have receded to 30s., the present price being about 37s.

YUDANAMUTANA MINES.—Circulars and letters are again in course of distribution amongst the shareholders of the Yudanamutana Mining Company, who complain to us, and declare their belief, that the sole object is to depreciate the value of the property in the estimation of the public, and to induce timid holders to get rid of their stock at any price or loss, and so to lower the value of the shares in the market, that those who have operated for the sale may buy back with profit. Such, moreover, is the general feeling in the City—that, in fact, it is a stock-jobbing matter, and carried on with recklessness as to facts and the real position of the mine in question. This would seem to be the case, if we are to judge from those lately issued. The balance-sheets and other documents, laid before our readers from time to time, do not give the least ground for the statements made, but, on the contrary, show that the affairs are most satisfactory, and the yield of ore increasing. In any sense, however, the course pursued by these volunteer writers is most objectionable—not only as respects the points in dispute, but in the more general acceptance of the term. If all who cavil, or have personal interests to serve, were to adopt similar proceedings, what would be the state of things? There are few, however, who desire gratuitously to damage the character of any enterprise in which they have embarked, and when such a line of action is adopted it is justly regarded with suspicion as to motives and object. It has gone too far with regard to the Yudanamutana. The statements made are either true or false, and if false the writers, and those who prompt them, should be punished for their temerity in giving currency to slander.

COPPER ORE AND REGULUS.—The imports of copper ore and regulus reflect the general expansion in the commercial operations of the empire which the last 20 years disclose. Thus these imports have been as follows yearly since 1843:—

	Tons	1844	1845	1846	1847	1848	1849	1850	1851	1852	1853
Tons	58,406	56,697	51,624	41,491	50,053	47,433	45,862	42,126	43,044	50,393	50,393
1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865
1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866

In the first five months of the current year the imports have been 36,733 tons, against 42,827 tons in the corresponding period of 1863, and 47,926 tons in the corresponding period of 1862. The value of the copper ore and regulus imported has been as follows since 1853:—1854, 1,236,132; 1855, 1,433,693; 1856, 1,929,683; 1857, 2,157,558; 1858, 2,128,880; 1859, 1,812,023; 1860, 2,211,558; 1861, 2,008,246; 1862, 2,631,056; and 1863, 2,000,473.

PROBABLE REVOLUTION IN STEAM—EXTRAORDINARY DISCOVERY.—Mr. W. H. James, C.E., whose name is already favourably known in connection with the originating of our Railway System, has, after devoting a whole life to scientific improvements, at length succeeded in producing a Steam Generator and Engine of such extraordinary power, in proportion to its weight, the space it occupies, the fuel consumed, and the cost at which it can be manufactured, that not the slightest doubt is entertained by those who have seen the invention in operation, and in whose opinions and judgment confidence can be placed, that when properly and fully understood, appreciated, and brought into use, it will by degrees effect a complete revolution in all kinds of steam machinery, and become applicable to numerous purposes for which the powers of present steam-engines are totally inadequate. It may be remembered that it was Mr. W. H. James who first suggested to the late Mr. George Stephenson the advisability of introducing tubes into his locomotive boilers, with a view of making them suitable for the propulsion of carriages (for which at that period they were totally inadequate) for the conveyance of passengers on railways, as shown by an agreement between the parties in the year 1821, ten years before the opening of the Liverpool and Manchester Railway, the principle of which improvement has never yet been surpassed. It will be curious indeed if it should fall to the lot of the same individual, after an interval of 43 years, to be again in the field, and the originator of the second great revolution in steam locomotion, which very likely will be the case if he is properly supported with capital to carry out his present invention. We hope shortly to be enabled to give the details of the invention.

CLEVELAND IRON.—We have again no change to report in reference to the number of furnaces in blast; though, judging from the state of the trade, and the progress that is being made by those whose furnaces are advancing towards completion, the figures which have varied so little for sometime past will speedily be changed—not for the worse, but for the better. The most noticeable feature in connection with our trade is the establishment of the Exchange at Middlesbrough, where a system and mode of dealing have been introduced analogous to that of Glasgow. Another feature is the unsettled state of things in Staffordshire: although this is better than an average time for the iron trade generally, the prospect would seem to be by no means bright for Staffordshire, and seeing that makers in our district have large remunerative orders, and are extending their puddling furnaces and mills of all kinds, and that new works requiring additional hands will shortly be in operation, it seems as if a transfer of business from Staffordshire to Cleveland were likely to come very rapidly. Wages of men are higher here than in Staffordshire, and any attempt to reduce wages there will lead to a still greater number of men removing from that district to there being no question of want of employment for them here at the higher scale of wages. It is evident at the same time that, paying the wages they appear to adhere to in Staffordshire, they are unable to command the profits which they should reap. The results, therefore, would seem to be very plain, and as they arise we shall discuss them.—*Darlington and Stockton Times.*

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The Mining Market; Prices of Metals, Ores, &c.

METAL MARKET—LONDON, JULY 22, 1864.

COPPER.	£ s. d.	£ s. d.	BRASS.	£ s. d.

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$\frac{1}{2}$ fms., and worth 6 tons of copper ore per fm., or 9 tons for length of mine. The sampling on the 29th will be 120 tons, worth, the agent calculates, at the present standard 600L East Lovell, 14 $\frac{1}{2}$ to 15 $\frac{1}{2}$; East Rosewarne, 8 $\frac{1}{2}$ to 9 $\frac{1}{2}$; East Russell, 4 $\frac{1}{2}$ to 4 $\frac{1}{2}$; Great Busy, 2 to 2 $\frac{1}{2}$; Great North Downs, 5 $\frac{1}{2}$ to 5 $\frac{1}{2}$. Rosewall Hill and Ransom, 8 to 9 $\frac{1}{2}$; the carbons in the 150, we are informed, is still looking well, and worth 70L to 80L per fm., and extending north and south from the Standard. Great South Tolgus, 2 $\frac{1}{2}$ to 2 $\frac{1}{2}$; Great Wheal Vor, 29 to 30; Hallenbeagle, 4 $\frac{1}{2}$ to 4 $\frac{1}{2}$; Marke Valley, 5 to 5 $\frac{1}{2}$; Nangiles, 26 to 27; North Treskerby, 1 $\frac{1}{2}$ to 2 $\frac{1}{2}$; New Birth Tor, 2 $\frac{1}{2}$ to 2 $\frac{1}{2}$; Providence Mines, 40 to 41. South Consul, 1 $\frac{1}{2}$ to 2 $\frac{1}{2}$; there is a large accumulation of tinstuff in this mine, which cannot be stamped for want of water. Tincroft, 17 $\frac{1}{2}$ to 17 $\frac{1}{2}$; Wheal Bassett, 89 to 91; Wheal Chiverton, 7 $\frac{1}{2}$ to 8 $\frac{1}{2}$; Wheal Margaret, 8 to 9; Wheal Mary Ann, 14 to 15; Wheal Seton, 217 $\frac{1}{2}$ to 222 $\frac{1}{2}$; Wheal Uny, 5 $\frac{1}{2}$ to 5 $\frac{1}{2}$. Great Laxey, 16 to 17; we understand from an official source that the reserves in this mine are estimated at 300,000L, and unless the dressing is interfered with by the want of rain, the profit will be 3000L a month, if not more, for a long time to come; and the next dividend will be 10s. per share. We understand, also, there are 2500 unallotted shares, and these, if sold at the market price, would give the company 40,000L (and this would be preferable), or they could be allotted *pro rata* to the present shareholders at par (4L), and be a good bonus to them. West Chiverton, 65 to 67; the 80 east, on Valpy's lode, is worth 100L per fm.; the 80, west of No. 8 Winze, 20L per fm.; the 80 west, on Williams's, 100L per fathom; the 80 west, on Elizabeth lode, 20L per fathom. Devon Consols, 570 to 580; a dividend of 10L per share (10,240L) has been declared out of profits on March and April ores, leaving 23,554L. 1s. 4d. in hand. At St. Day United Mine meeting the accounts showed a profit of 6642L 7s. 11d. on four months' working, and a balance in hand of 1753L 19s. 7d.; Oppie's shaft, sinking below the 184, is worth 50L per fathom. The pitches and stopes are much the same as for some past, but the fall in tin has seriously affected the profits; several breakages, also, it is said, affected the returns, and on the mine and underground there are 25 tons of tin. West Frances, 29 to 31.

On the Stock Exchange business in Mining Shares has been rather more active during the week. The following quotations were officially recorded in British Mining Shares:—East Lovell, 14 $\frac{1}{2}$; Great Laxey, 16 $\frac{1}{2}$; Great South Tolgus, 2 $\frac{1}{2}$; Great Wheal Vor, 29; Tincroft, 17 $\frac{1}{2}$; West Chiverton, 65; West Seton, 217 $\frac{1}{2}$; Wheal Seton, 229 $\frac{1}{2}$; Devon Consols, 577 $\frac{1}{2}$, 580; East Grenville, 5 $\frac{1}{2}$; East Wheal Russell, 5 $\frac{1}{2}$; North Wheal Bassett, 1 $\frac{1}{2}$, 14. In Colonial and Foreign Mining Shares, the prices were:—Scottish Australian, 5 $\frac{1}{2}$; Yudanamutana, 2 $\frac{1}{2}$, 2 $\frac{1}{2}$, 2 $\frac{1}{2}$; St. John del Rey, 29 $\frac{1}{2}$, 31, 30, 32, 36 $\frac{1}{2}$, 37 $\frac{1}{2}$, 38 $\frac{1}{2}$; Fortune, 38 $\frac{1}{2}$, 4 $\frac{1}{2}$; Cobre, 34; United Mexican, 5 $\frac{1}{2}$, 5 $\frac{1}{2}$, 5 $\frac{1}{2}$.

The Mining Financial Association, with a capital of 1,000,000L (of which one-half is to be first issued) in shares of 25L each, has issued its prospectus. The object of the enterprise is to afford to all classes that security which a large associated capital can alone command, and it is very truly remarked that the principle of spreading money over a great number of risks is even more applicable in mining than in marine and other assurance, and that in all cases where it is acted upon it is well known that the results are certain and highly remunerative. The proposal for the division of risks in mining operations appears to have been first promulgated by Mr. J. Y. Watson, in 1843, and large fortunes have since been realised by those who have acted upon the suggestion thus thrown out. The present undertaking is simply a development of the plan upon a large scale. It is mentioned that financial undertakings applied to speculations yielding much less profit than mining have returned very large dividends, and the gains of the Mining Financial Association ought to be proportionate. A novel feature in the undertaking is that the directors propose to take mining shares in lieu of cash, in payment of the amount due upon allotment, so that those at present embarked in mines may secure the advantage of the distribution of risk principle, without the outlay of any considerable amount of additional cash. The board is an influential one, composed of gentlemen largely interested in mines as investors. The prospectus will be found in another column.

The Wheal Prudence Copper Mining Company, with a capital of 25,000L in shares of 1L each, has issued its prospectus, which will be found in another column of this day's Journal. The mines to be worked are held under the Duchy of Cornwall, and situated at St. Agnes, several lodes traversing the north part of the seat, being the well-known and productive lodes of Perran St. George and Wheal Leisure; the chief object of the present company is to intersect these lodes at a deeper level. The Perran St. George lodes have produced 700,000L worth of ores. The sett has been favourably reported upon by Capt. Chas. Thomas, of Dolcoath; Nicholas Vivian, late of Condurrow; James Pope, of West Bassett, and John Daw, of Carn Brea, all of whom concur in regarding it as a more than ordinary mineral investment, and well worthy the attention of capitalists. After alluding to the great value of the Perran St. George lodes, Mr. Endean remarks that there is a cross-cut going out to intersect them, from which the drivings are distant about 20 fms. from the nearest of them; when it is cut it will create a sensation in the mining world of no ordinary character. Capt. Edward Rogers, of Wheal Grylls, writes that as the lode gets deeper it is a very large and strong one, with an immense quantity of muriatic acid, and at the two bottom levels copper is forming itself in large quantities. At the surface there is a good 70-in. cylinder pumping-engine, and a new 24-in. winding-engine and capstan. With these appliances, twelve months' further continuous working, with an outlay of about 4000L, will put the mine in a paying state.

The Cornubia Tin Mine is about to be reworked by a limited liability company, with a capital of 36,000L, in shares of 3L each, the prospectus of which will be found in another column, and a lithographed plan of the works accompanies this day's Journal. The mine has been highly spoken of by Capts. Charles Thomas, John Daw, and Joseph Vivian, and their reports infer that nothing but a further application of capital is required to bring the mine into a dividend state. The direction is an influential one, and a large number of the shares being already subscribed for, little doubt is entertained that the remainder will be speedily appropriated. The machinery on the mine is considered to be efficient and ample for the perfect development of the property. It is mentioned that the surrounding mines have for centuries been notorious throughout the kingdom for their immense riches, and Cornubia being situated in precisely the same channel of ground, there is very little doubt of its proving as productive as any of the mines in its immediate neighbourhood.

The Peninsula Gold Mining and Washing Company is the title of a projected undertaking (the prospectus of which will appear in next week's Journal), with a nominal capital of 100,000L, divided into 2L shares, half of which has been already subscribed. The object of the company is to purchase and work certain gold quartz mines in Spanish Estremadura, and about 5000 acres of alluvial gold deposits in Portugal, near the village of Rosmaninhal, on the north side of the River Tagus. There are fourteen mines included in the property offered to the company, out of which the company will select as many as it may think proper to work. The railway between Lisbon and Badajoz passes within a few miles of some of the mines. It appears that the gold found in the Portuguese washings is of the purest quality, and it is stated that the quantity is practically unlimited, as large and small pieces of pure gold are constantly picked up by the villagers in the neighbourhood of Rosmaninhal. Mr. W. Morgan Brown (who inspected and reported upon the property for the concessionaires in October last) concludes an elaborate report by stating "I may perhaps record my belief, that had this property been in any other country in Europe than Spain, or had it been even in Australia—that land of gold and high-priced labour—nearly every one of these mines would have long since been worked with the enterprise they deserve, and the alluvial district of Rosmaninhal would have yielded its golden produce to an enterprising and industrious race." The purchase-money is 13,000L in cash, and 16,000 shares in the company, with 1L per share paid; the said 16,000 shares not to bear a dividend until at least 10 per cent. has been paid to the otherholders. There are no fees payable to promoters, and the purchase-money (29,000L) is to include all expenses up to the time of the allotment of shares.

The progress during the past week of other undertakings recently introduced, the publication of whose prospectuses has been already announced, is thus reported—Great Wheal Bonnie shares have been dealt in at £ to £ per share, in anticipation of the applications exceeding the number to allot. The Norwegian Copper Mining Company have received a report from Capt. Jewell, which has induced them to decide upon going on with the mine. The staff engaged by the directors of the Frontino and Bolivia Mining Company were expected to arrive at the mines by the beginning

of the present month. The machinery will be ready for shipment in about a fortnight, and the superintendent (Capt. Goyen) proposes proceeding to the mines by the packet which leaves Southampton at the early part of August, and a good remittance of gold is expected by October.

At Truro Ticketing, on Thursday, 5503 tons of ore were sold, realising 28,774L 0s. 6d. The particulars of the sale were:—Average standard, 136L; average produce, 5L; average price per ton, 5L 4s. 6d.; quantity of fine copper, 322 tons 18 cwt. The following are the particulars:

Date. Tons. Standard. Produce. Price per ton. Ore copper.

June 30..... 3640 £123 11 0 614 £4 19 0 278 10 0

July 7..... 3004 123 12 0 714 6 3 0 85 4 6

" 14..... 2252 129 13 0 634 5 10 0 86 8 0

" 21..... 5603 136 0 0 574 5 4 6 89 3 0

Compared with the last week's sale, the advance has been in the standard 2L 10s., and in the price per ton of ore about 3s. 4d. Compared with the corresponding sale of last month, the advance has been in the standard 10L 10s., and in the price per ton of ore about 1Ls.

The directors of the Devon Great Consolidated Copper Mining Company, at their board meeting held yesterday, declared a dividend of 10,240L, being 10L per share, arising from profits on sales of copper ores sampled in the months of March and April last. After payment of the same, there remains in hand a balance of 23,554L 1s. 4d. in cash, ore bills not at maturity, and reserved fund applicable to the general purposes of the company.

At the West Bassett Mine two-monthly meeting, on Wednesday, the accounts showed—Balance from last meeting, 31L 4s. 2d.; copper ore sold, 4849L 0s. 7d.; iron sold, 159L 1s. 7d.; fines, 1L 5s.; advance on tribute, 5507L 11s. 4d.—Cost for April, 1732L 5s. 9d.; cost for May, 1425L 1s. 9d.; royalty, 325L 10s. 5d.; advance on tribute, 320L 4s. 9d. A dividend of 1500L (5s. per share) was declared; and 2L 4s. 9d. (the balance), and the proceeds of sales of ore not at maturity, amounting to 4420L 11s. 3d., applicable for the general purposes of the adventure.

At the Stray Park Mine meeting, on July 13, the accounts for the four months ending April showed a debit balance of 596L 1s. 9d. The loss on the four months' working was 630L 1s. 7d. A call of 1L per share was made. It was resolved

" That the kind offices of Mr. Francis Trevithick be respectfully requested for obtaining from the Dolcoath adventurers permission to communicate with the Dolcoath workings, and to avail of their man-engine for the purposes of this mine, upon payment of a fair remuneration for such use." The agents having reported that the yield of tin is on the increase, it was thought by the adventurers present that a 10s. per share call to-day, and a 10s. call next account meeting, would clear the cost-book of all the liabilities, with good prospects of a better financial condition after that period.

At Bedford Consols Mine meeting, on Wednesday, the accounts showed a debit balance of 76L 17s. 6d. A call of 1s. per share was made.

At Wheal Colenso Mining Company, on July 15 (Mr. R. R. Michell in the chair), it was resolved that the mine should be worked on the Cost-book System, with 6000 shares. A call of 1s. per share (300L) was made for working the mine. It was determined that the lease on terms of the license—21 years, at 1L 20s. dues per annum—should be applied for. It appears that the statement of "E. H." (Goldsmiths), in last week's Journal, that grey copper had not been discovered was stated altogether false. The mine has been inspected by Capts. H. James, T. Gill, G. Tremayne, H. Skewis, W. H. Richards, Rogers, of Wheal Grylls, and Mr. John Kendall, of Redruth, who attended (except Captain Skewis) the meeting, each and all of whom will testify not only that "large masses of rich grey copper ore have been met with at a less depth than 10 fms. from the surface," but that many tons of rich grey copper ore are now and have for weeks been lying near the shaft, open to the inspection of any persons desirous of making himself acquainted with the facts connected with one of the most important discoveries made in the Marazion district for many years, the lode being from 3 to 4 feet wide, a splendid gossan lode, in a most congenial metalliferous clay slate, containing "very large masses of grey copper ore," and worth at places from 20L to 30L per fathom, at a depth of 12 fathoms from surface.

At Wheal Emily Henrietta meeting, on Monday, the accounts showed a loss of 473L 7s. 10d. on the last two months' working. A call of 1s. per share was made.

At the Dale Mine special general meeting, on Tuesday (Mr. Procter in the chair), convened for the purpose of considering the advisability of increasing the capital of the company, it was stated by the secretary (Mr. Dunsford), in reply to a question, that at the last meeting it was computed the next sale of ore would be 30 tons, whereas it was 37 tons. Mr. James mentioned that since the last meeting the returns had not only paid the costs, but had left a profit. Mr. Johnson thought that the lead and blende raised since the last meeting would produce 449L. Upon the proposition from the chair, that the capital of the company be increased from 35,000L to 40,000L, by the issue of 5000 (1L) shares at a discount of 19s. 6d. per share, a discussion arose as to the policy of not issuing the new shares at a less discount than 10s. per share. Mr. Johnson remarked that the only condition upon which he would support the proposition was that it could be rejected or non-confirmed at the next special meeting, it being quite possible that the mine would not open up in the interim that the proposed increase of capital might not be required. It was eventually agreed to adopt the resolution, upon the understanding that the new shares (if any) not taken up by the shareholders should not be offered to the public at the same discount.

THE COPPER TRADE.—Mr. J. Pitcairn-Campbell, of Liverpool, reports The past fortnight has been characterised by an active and also speculative demand for both English and foreign Copper, and though the smelters have not officially advanced their prices, they have been able to sell pretty freely at 3L advance; 5L is now generally asked. Chili bars have advanced to 89L and 90L, and there is very little Chili ore and regulus to be got under 18s. per unit. This change has been produced by the feeling on the part of consumers that copper had reached a price when it was desirable to go pretty freely into stock, more particularly when they saw, from the peculiar way in which the stock of the raw material was held, that the smelters were forced to pay high prices for their requirements, and, moreover, that the speculative element was being further stimulated by the idea that Chili supplies might be interfered with, in consequence of the disturbed relations between the Coast and Spain. The imports into Liverpool and Swansea during the six months ending June 30 have been as follows:

Ores. Regulus. Barilla. Slab. Equal in fine copper.

1864 32,150 13,857 682 925 21,978

Same period 1863 41,053 8,926 392 5862 17,429

In the whole of last year they amounted to 31,824, and in 1862 to 40,326 tons of pure copper. The sales since my last have been—

June 29.—200 tons bars, per "Maid" £25 5 0 per ton.

" 30.—100 " bars, to arrive, per "Frankby" 56 10 0 "

" 30.—100 " regulus, to arrive, per "Duchess of Lancaster" 56 10 0 "

" 30.—120 " regulus, to arrive, per "Pizarro" 0 17 3 per unit.

July 1.—60 " ore, } at Swansea, per "Scout" 0 17 3 "

" 1.—100 " bars, per "Miranda" 85 0 0 per ton.

" 2.—100 " bars, per "Acapulco" 85 10 0 "

" 4.—50 " to arrive, per "Tacna" 86 10 0 "

" 4.—50 " second hands 86 0 0 "

" 5.—50 " to arrive in September or October 87 0 0 "

" 5.—5 " per "Illman" } 86 10 0 "

" 5.—5 " per "Hayti" } 86 10 0 "

" 7.—50 " second hands 87 0 0 "

" 7.—80 " per "Acapulco" 87 0 0 "

" 7.—50 " per "Parthena" 88 0 0 "

" 7.—100 " to arrive, per "Vicuna" 88 0 0 "

" 8.—28 " " Frankby" 89 0 0 "

" 8.—45 " " Jessie Stowe" 89 0 0 "

" 8.—40 " " Duchess of Lancaster" 89 0 0 "

" 11.—200 " bars, per "Zohima" 0 18 9 per unit.

" 11.—69 " bars, to arrive, per "Vicuna" 88 0 0 per ton.

" 11.—75 " " Duchess of Lancaster" 89 0 0 "

" 13.—695 " regulus, at Swansea, per "Atom" 0 17 3 per unit.

" 14.—135 " bars, to arrive, per "Florence Nightingale" 90 17 3 "

" 15.—200 " bars, second hands 90 0 0 per ton.

There are no sellers of regulus under 18s.; bars may be quoted at 83L and 90L; and bars, 18s. 9d. and 19s. Arrivals since my last have been—

Ores. Regulus. Bars. Barilla.

" Chimborazo" 610 110 —

JULY 23, 1864.

WATSON AND CUELL'S MINING CIRCULAR.

WATSON AND CUELL,
MINING AGENTS, STOCK AND SHARE DEALERS, &c.,
1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

Messrs. WATSON and CUELL having made arrangements for transferring their weekly Circular, which has had so large a circulation during the past ten years, to the columns of the *Mining Journal*, their special reports and remarks upon Mines and Mining, and the state of the Share Market, will in future appear in this column.

In the year 1843, when Cornish mining was almost unknown to the general public, attention was first called to its advantages, when properly conducted, in the "Compendium of British Mining," commenced in 1837, and published in 1843, by Mr. J. Y. Watson, F.G.S., author of "Gleanings among Mines and Miners," "Records of Ancient Mining," "Cornish Notes" (first series, 1862), "Cornish Notes" (second series, 1863), "The Progress of Mining," with Statistics of the Mining Interest, annually for 21 years, &c., &c. In the Compendium published in 1843 Mr. Watson was the first to recommend the system of a "division of small risks in several mines, ensuring success in the aggregate," and Messrs. Watson and Cuell have always a selected list on hand. Perhaps at no former period in the annals of mining has there been more peculiar need of honest and experienced advice in regard to mines and share-dealing than there is at present; and, from the lengthened experience of Messrs. Watson and Cuell, they are emboldened to offer, thus publicly, their best services to all connected with mines or the market, as they have for so many years done privately, through the medium of their own Circular.

Messrs. WATSON and CUELL transact business in the purchase and sale of mining shares, and other securities, payments of calls, receipt, and transmission of dividends, obtaining information for clients, and affording advice, to the best of their knowledge and judgment, based on the experience of more than 30 years active connection with the Mining Market.

Messrs. WATSON and CUELL also inform their clients and the public, that they transact business in the public funds, railways, docks, insurance, and every other description of shares dealt in on the Stock Exchange.

Messrs. WATSON and CUELL are almost daily asked their opinion of particular mines, as well as to recommend mines to invest or speculate in, and they give their advice and recommend mines to the best of their judgment and ability, founded on the best practical advice they can obtain from the mining districts, but they will not be held responsible, nor subject to blame, if results do not always equal the expectations they may have held out in property so fluctuating as mining.

Messrs. WATSON and CUELL having agents and correspondents in all the mining districts, and an extensive connection among the largest holders of mining property, have the more confidence in tendering their advice on all matters relating to the state and prospects of mines and mining companies, and are enabled to supply shares in all the best mines at close market prices, free of all charges for commission.

THE EAST GRENVILLE LODE AND WHEAL GRENVILLE.—We expressed, a fortnight since, a strong opinion that the East Grenville lode, which was approaching the boundary of Grenville, was a most important thing for the latter mine; and on referring to the "Cornish Notes" of 1861, Mr. J. Y. Watson wrote thus from the mine:—"East Grenville: The shaft is down 32 fathoms, and the lode, which has caused considerable excitement for some time past, is worth 15*l.* per fm. This is the rich South Frances and West Bassett disputed lode, and for the depth, everything that can be desired for a rich course of ore." * * * There is but one opinion in the district as to its great promise; and let shareholders remember that West Bassett, in the same number of shares, rose to 30*l.* each, and nothing in that mine, or at South Frances, was more promising at the depth than the lode now in *East Grenville*." This, our readers must remember, was written by Mr. Watson three years ago. The shaft is now 75 fathoms deep, and the mine turning out just what he stated. Now, mark the following, written at the same time, on WHEAL GRENVILLE:—"Near the boundary of East Grenville (in Grenville sett) a small shaft has been sunk 4 fathoms, and the East Grenville lode cut 2 feet wide, with rich gossan, and quite as good as when cut in *East Grenville* at the same depth. This is a very important point in Grenville, and adds greatly to its value." This was an opinion expressed in 1861; and having made enquiries about this shaft during the past week, we find that it was sunk 24 fathoms deep, and then stopped by the water; and the tin lode having soon afterwards been discovered, all the attention of the company was devoted to that. This shaft, however, on the East Grenville lode, is to be at once resumed; and the agent tells us every fathom the 6*l*. west is driven in *East Grenville* assists in draining the shaft, and proves the lode for *Grenville*. He adds, that from the boundary of East Grenville there is a run on the lode, in *Grenville* sett, of 70 fms. before it reaches the cross-course. Here, then, are points the value of which can scarcely be over-estimated for *Wheal Grenville*—the lode rich within little more than 30 fathoms from the boundary—the same lode cut equally as promising for the depth in *Grenville*—the shaft down 24 fathoms upon it—and the 6*l*. west in *East Grenville* draining it.

NANGILLES.—The shaft here has lately been sunk on a poor part of the lode, in order to keep a regular underlie in the skip-road, and the south part is not expected to be seen again until the shaft is down to the 10*l*; this south part, however, seems to be throwing branches into the north part, and has made the part now sinking on worth 25*l.* per fathom.

WEST SETON is looking well; the new shaft is about 5 fathoms under the 90, with a lode worth 80*l.* to 90*l.* per fathom. The 100 west is worth 5*l.* tons per fathom, within 7 fms. of the shaft, and in three months it will be communicated; when there will be a fine piece of ore ground to take away, and not a ton of ore has yet been taken from it.

DYFFRYN CASTELL.—Some years ago a limited liability company worked this mine, and spent upwards of 500*l.* upon it. The prospects were exceedingly good, but the capital having been expended, it was sold in one lot, and for nearly two years has been worked privately by a few influential shareholders, in 25 shares of 100*l.* each, paid up. The old company worked 10 fathoms below the adit, or 17 fathoms from surface, where the lode was about 20 fathoms wide, with blonde in the back, the same as in the productive mines of the district, Lisburne, &c. From 20 to 30 tons of this blonde was sold monthly by the old company, at 2*l.* to 3*l.* per ton, but the present proprietors have confined themselves solely to sinking the shaft down to the 34, are now cutting through the lode, with very fine prospects, and are within 2 or 3 fms. of being under the productive part of the lode. Blonde, also, has risen to 5*l.* or 6*l.* per ton, and it is hoped good quantities can be returned at once, though the main object in driving in the 34 is for lead, which in this district is always met with under blonde, as copper is generally found under gossan. Of the capital privately subscribed, nearly 400*l.* is yet unexpended, and the costs under 50*l.* per month; and when the shareholders undertook to prove the mine in this small number of shares, it was with the view, when proved, of making it into 6000 shares, of 1*l.* or 2*l.* each; and they considered the 1-25th (or 100*l.*) share would then be fairly worth 500*l.*, and this prospect is now improved by the rise in blonde; and in a few months, probably, this division of shares will be made. Our object in going into these particulars is to state that two 25th shares, of 100*l.* each, are in our hands to be disposed of, price 100*l.* (par). The names of the shareholders will be furnished to any intending purchaser. Mr. Theodore Parn, of Aberystwith, the manager, will furnish particulars as to the state of the mine, and these two shares will be sold to the first applicants. We consider we are justified in recommending them as a fair, legitimate, and good speculation, and we will also explain how it is they are offered for sale. It was one of the conditions, at the commencement of this undertaking, that no liability beyond the subscribed capital should be incurred without the consent of all concerned.

THE CHIVERTON DISTRICT.—Some people think, from our remarks a fortnight ago, that we have a prejudice against this district, which is not the case; nor have we any feeling against any bona fide or legitimate speculation in it. We said the district had been overdone, and we may add, the public have been done too, in some instances. One gentleman, who writes us, paid a large sum of money for shares in a mine called after Chiverton and another rich lead mine, and he questions now whether there is, in reality, a mine or a company? We think, therefore, and every one interested in its real welfare will agree with us, that a little ventilation will do the district no harm, considering the enormous sums of money invested in it.

WHEAL CHIVERTON.—We have been disappointed in getting answers to several queries respecting this mine, and must defer our remarks, in consequence, till next week.

GREAT LAXEY.—We have received very important information from these mines, and have special business in the shares.

THE MARKET.—For the state of the market, and the latest quotations of the Mining Exchange, see City Article.

WHEAL PRUDENCE COPPER MINING COMPANY (LIMITED).

Registered under the Joint-Stock Companies Acts, with limited liability.

In St. Agnes, in Cornwall.

Capital £25,000, in 25,000 shares of £1 each.

Of which 17,000 are already subscribed.

Deposit, 5*s.* per share. Subsequent calls not to exceed 2*s.* 6*d.* per share, at intervals of three months.

DIRECTORS.

JOHN BRAY, Hill House, Scarcroft, near Leeds, Railway Contractor.

MATTHEW TODD, Messrs. M. and J. Todd, Bradford, Woolcomber.

WILLIAM HENRY WILKS, Moor Grange, Headingley, near Leeds, Colliery Owner.

JOSEPH JONES, Halifax, Woolstapler.

BANKERS—Messrs. Beckett and Co., Leeds.

PURSERS—C. and C. Thomas, Redruth and London.

ENGINEERS—Michell and Jenkin, Redruth.

SECRETARY—Edward Hinde.

REGISTERED OFFICE OF THE COMPANY, 18, EAST PARADE, LEEDS.

The Wheal Prudence Mines, now in operation, are situated at St. Agnes, in Cornwall, within the lands of His Royal Highness the Prince of Wales, in a district renowned for an early period for its metalliferous productiveness, and surrounded by mines which have produced to their proprietors enormous riches.

The lithological features which this sett presents are of the most successful character, being at the junction of the granite and clay-slate, the latter stratification being a light coloured schist, precisely analogous to that of the Perran Great St. George, Wheal Leisure, Great Wheal Charlotte, Wheal Bassett, and Wheal Music Mines, every one of which realised ample profits; traversed by numerous large and well-defined lodes, two highly congenial elvan courses and five cross-courses intersecting the lodes and elvans at nearly right angles.

Several of the lodes traversing the north part of the sett are the well-known and productive lodes of the Perran Great St. George and Wheal Leisure Mines, many of which are visible on the surface, presenting on their backs numerous rich branches and stones of ore.

The great object in resuming these mines was to intersect these lodes, and with that view the present company have erected efficient pumping and winding engines, calculated to carry on mining operations for a long period, and to great depths; have drained the mines, and are now driving out a cross-cut from a deep level to intersect these celebrated and productive lodes. They are also developing the Wheal Prudence lode.

17,000 of the shares are already subscribed for, and the directors are now authorised to issue the remaining 8000, which they can confidently recommend, as they are not asking the public to incur the risks incident to mining—viz., in the drainage of the mines and discovery of ores, as they have already been overcome, and copper ores ascertained to exist, which require only further capital to develop, and in the opinion of the directors render the concern a highly lucrative and permanent investment; in confirmation of which extracts from the *Mining Journal* and from the reports of eminent and distinguished mining agents are annexed.

If no allotment of shares is made the deposit will be returned in full.

Applications for shares to be made to Mr. EDWARD HINDE, 18, East Parade, Leeds, in the form annexed; or to Messrs. C. and C. THOMAS, Redruth, Cornwall.

Extract from *Mining Journal*, Saturday, May 14, 1864.

WHEAL PRUDENCE.—These mines are situated in St. Agnes, Cornwall, at the junction of the granite and clay-slate, and contain, in addition to the Wheal Prudence lode, the lodes of the renowned Great St. George Mines, which returned ore to the value of £700,000. The present company are driving a cross-cut in the 42 fm. level to intersect these lodes, from the first of which the head of the cross-cut is only distant about 20 fms. They also have the Wheal Prudence lode in a cross-cut in the 62, driven from the engine-shaft, where they have a good lode of ore. The containing rock is clay-slate of the white kind.

The lodes, too, are associated with elvan courses, running parallel to and dipping with them.

Numerous cross-courses also intersect these lodes; in fact, the lithological features of a successful character, rarely combined in one sett. There is an effective 70 fm. pumping engine at work, calculated to carry the workings to stupendous depths.

The rest of the machinery is co-extensive in power with the pumping machinery, and the works have been laid out with a view to permanency, under the direction of Messrs. C. and C. Thomas, of Redruth. The company is incorporated with limited liability, with a capital of £25,000. The registered office is in Leeds, and Mr. Edward Hinde, of that town, is the secretary. The mines are little known at present out of Cornwall and Yorkshire, but merit a great notoriety, which they will suddenly attain on the cross-cut intersecting the Great St. George lodes, the driving of which is pushed on with the greatest energy.

Extract from the Mining Circular of Mr. ENDEAN, Sharebroker, May 26, 1864.

WHEAL PRUDENCE, ST. AGNES.—The lodes in these mines are a continuation of the Great St. George lodes, which produced £700,000 worth of ores, associated with elvan courses and numerous cross-courses; the mines are in full operation, drained by efficient machinery. There is a cross-cut going out to intersect these lodes, from which the drivings are distant about 20 fms. from the nearest of them. When it is cut it will create a sensation in the mining world of no ordinary character, and the shares command a high rise, probably of £200 or £300 per cent.

EXTRACTS FROM REPORTS.

The sett immediately adjoins the western boundary of the celebrated Perran St. George Mine, which for a long period was exceedingly rich. All the lodes, especially the north lodes, are very favourably situated in a geological point of view. The enclosing rock, clay-slate or killas, being of the white kind, highly favourable in the St. Agnes district for the production of copper ores. This killas adjoins the Cilliger granite, and is similar in all respects to that in Perran St. George and the St. Agnes Wheal Leisure Mines, the lodes in each of which have proved immensely rich. From a careful consideration of all the circumstances, and having regard to the present facilities for conducting mining operations, I am of opinion that this mine offers a prospect of success of no ordinary character.

CHARLES THOMAS, Manager of Dolcoath Mines.

On minutely inspecting the geology of the country in which the Wheal Prudence is situated, I have arrived at the conclusion that it is a very interesting piece of mining ground, and wonderful that it has never been explored to a greater extent many years ago. The lodes of the adjoining mine, Perran St. George, traverse this sett, and might be intersected by cross-cuts, in very inexpensive ground, their productiveness in Perran St. George giving much additional value to Wheal Prudence.

NICHOLAS VIVIAN, Late Manager of Condurrow Mines.

The sett contains Wheal Prudence lode, Hanover lode, Good Fortune lode, Way's lode, and Lemon's lode, and these are intersected by cross-courses and elvan dykes; they are also a continuation of those that were so productive for copper to the east—viz., in Great St. George, Wheal Leisure, and Perran United Mines. These mines returned immense quantities of copper ore, and gave great profits. We consider Wheal Prudence to be more than an ordinary mineral investment, and well worthy the attention of capitalists.

JAMES POPE, Manager of West Bassett Mines.

JOHN DAW, Manager of Carn Brea Mines.

Capt. DAW, in a recent report obtained by a shareholder, states to the following effect:—At this point (the north heave in the 62 fm. level) something good may be met with, as the former workers worked in the bottom of the 62 fm. level, west of the heave. In the bottom of the 62 fathoms level the lode has been worked away east and west many fathoms in length, for 3 or 4 fms. deep, so from this we may judge they had a good run of ore ground. In the 40 fm. level a cross-cut is driving north in light slate, congenital for mineral, to intersect lodes which have produced large quantities of ore to the east. I should recommend this cross-cut to be pushed with all speed, as it may lead to important discoveries. After such an outlay has been made, I should recommend this mine to be much further tried, by sinking the shaft and extending the levels.

Capt. EDWARD ROGERS, of Wheal Grylls, in a report to a large shareholder, states the following effect:—The engine-shaft is down to the 62 fm. level, under adit, which is 112 fms. from surface. The water is out to this depth, and the pitwork fixed in a very good and substantial manner, the shaft cased and divided, and put in proper working order for carrying on the mine properly and economically. I find the ancients worked 4 fms. under this level (the 62), which must have been troublesome and expensive, but it shows that they had a rich lode to follow. At the shallow levels the lode is small, showing strings of copper ore; as it gets deeper it is a very large and strong lode, with an immense quantity of mudi, and at the two bottom levels copper is forming itself in large quantities. At the surface there is a good 70 fm. cylinder pumping engine, and a new 24 fm. winding engine and capstan. With these appliances, twelve months' further continuous working, with an outlay of about £4000, will put the mine in a paying state.

FORM OF APPLICATION FOR SHARES.

To the Directors of the Wheal Prudence Copper Mining Company (Limited).

GENTLEMEN,—I request that you will allot me shares in the above-named company, and I agree to accept the same, or any less number that you may allot to me, and I agree to pay the deposit of 5*s.* per share thereon, on request, and all calls duly made according to the rules and regulations of the company.

Name in full.....

Address

Signature

NORTH WHEAL SETON COPPER MINING COMPANY (LIMITED).

Capital £25,000, in 1000 shares of £25 each.

Deposit, £2 10*s.* per share.

DIRECTORS.

J. T. FENTON, Esq., Stapleton House, Leeds, Colliery Owner—CHAIRMAN.

JOHN BRAY, Esq., Hill House, Scarcroft, Leeds, Railway Contractor.

THOMAS SCHOLEFIELD, Esq., Ivy House, Leeds, Gentleman.

JOHN ROSEBY, Esq., Haverholme House, Brigg, Lincolnshire, Engineer.

ALFRED TEALE, Esq., Albert Mills, Leeds, Cloth Merchant.

J. W. MAESDEN, Esq., Clay Pit House, Leeds, Ironfounder.

BANKERS—Messrs. Beckett and Co., Leeds.

MANAGERS—C. and C. Thomas, Redruth, Cornwall.

SECRETARY—G. Simpson, Albion-street, Leeds.

OFFICES—55, ALBION STREET, LEEDS.

This company is formed for the purpose of working the North Seton Mine, which is situated at Camborne, in Cornwall, the richest district in Europe for copper, and to the west of the celebrated Seton and Tolgus Mines, which have realised immense profits, the West Seton Mine alone having returned in one year £49,000, and still being one of the richest mines in the district.

THE MINING JOURNAL.

THE TAVISTOCK IRONWORKS AND STEEL ORDNANCE COMPANY (LIMITED).

The above company, having now taken possession of the well-known and long established business of Messrs. Gill and Co., of Tavistock, engineers, beg to announce that they have commenced operations, and are PREPARED to ENTER INTO CONTRACTS for the MANUFACTURE and ERECTION of STEAM ENGINES, BOILERS, and MACHINERY of EVERY DESCRIPTION, as well as for SUPPLYING CONTRACTS with RAILWAY and OTHER PLANT and MATERIAL, and MANUFACTURING promptly to order CAST and HAMMERED IRON OF ANY WEIGHT or DESCRIPTION, CHAINS, SHOVELS, EDGE TOOLS, and EVERY VARIETY of IMPLEMENT for MINING, MANUFACTURING, or AGRICULTURAL PURPOSES; and having availed themselves of the services of Mr. T. Charles Gill, who continues the management of the works, are prepared to guarantee the quality of all articles supplied to be fully equal to that which has already secured for Messrs. Gill and Co. so extensive a reputation.

Now ready, price 2s. 6d., by post 3d penny stamps,

M. R. HOPTON'S NEW WORK, entitled CONVERSATIONS ON MINES, &c., BETWEEN "A FATHER AND SON." Thirteen plans on ventilation and working out coal, dialling, planning, and taking the dip and rise of the mine illustrated.

Near 900 copies are ordered in Wigan alone.

Address Mr. J. J. CAMPBELL, Cropper's-hill, St. Helen's; or the author, 73, Peter-street, St. Helen's.

Just published, price 1s., by post 1s. 1d.,

HISTORY OF THE RISE AND PROGRESS OF MINING IN DEVONSHIRE,

From the time of the Phoenicians to the present.

By G. CHOWEN.

London: Published at the MINING JOURNAL office, 26, Fleet-street, E.C.

Notices to Correspondents.

* Much inconvenience has arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be regularly filed on receipt: it then forms an accumulating useful work of reference.

LIMITED LIABILITY COMPANIES.—Will any reader kindly inform me if it is legal, under the Limited Liability Act of 1862, for the captain of a mine who is receiving a salary for his services to be a director of the same mine? The shareholders certainly have appointed him as managing director, but I contend he cannot be a paid servant to the company and hold his position as director, as the 55th clause in the Articles of Association says if a director holds any other office or place of profit under the company he shall be disqualified from being a director.—T.

QUERIENDA LAND, RAILWAY, AND MINING COMPANY.—Upon enquiring at the office, we find that no advices were received by the last mail. Extracts from the letters received by the previous advices have already appeared in the Journal.

GREAT RETALACK.—The remarks of Messrs. Watson and Cuell on this mine in last week's Journal, merit the serious attention of the shareholders. While thinking with them that the defaulter should be at once proceeded against in the Stannaries Court, I entirely disagree with them as to the propriety of winding-up the concern. Surely the fact of shareholders being in arrears of calls, when no steps have been taken to make them pay, should be no reason to wind-up a company, which certainly now possesses better chances of success than it ever did before. As a large shareholder, I say let the defaulter be made to pay, then work the mine vigorously, under efficient management, for a year, and in that time (perhaps much less) my firm belief is that Retalack will become in fact, as well as name, a great mine.—A SHAREHOLDER.

CLOVERTON DISTRICT.—It must be apparent to everyone that this is the best district for lead ever discovered in the West of England. The celebrated Old Shepherds' Mine is but a short distance from the East Wheal Rose, on the north-east, and a still less distance from West Clovertown. Besides, Cargoll and other mines within these limits, said to have arrived at a position beyond risk, ought to be sufficient to inspire public confidence generally. If in another district the discovery of one good mine is sufficient to put to work in its immediate vicinity a cluster of other mines, what should be the influence of so many good mines as are already existing in this district, and where the prospects are so remarkably good?—AN IMPARTIAL OBSERVER: Perranzabuloe.

WENTWORTH.—By a paragraph in last week's Journal, I find, in answer to a previous enquiry, that the workings have been stopped because of the great arrears of calls. I do not wonder at the shareholders being tired out by a speculation the chief part of whose funds (150*l.*) go to the London agent; and when enquiries are made at the nominal office in Moorgate-street, the answer is that the agent lives at Aberystwith, and that the books are there. Added to this farce of London management, we are coolly told that a meeting is to be held at Holywell, where there is but one shareholder. Why cannot the agent and paid director muster sufficient courage to meet the shareholders in London where they principally reside, and in the offices so liberally paid for, especially at such a crisis?—AN OLD SUBSCRIBER.

FALUNTO AND BOLIVIA GOLD MINING COMPANY.—It was stated in the Journal a short time since that the staff and machinery had left Southampton, *en route* for the company's mines. Since then, so far as I have seen, no further mention has been made as to this company's progress. Seeing there is such a large proprietary, some of whom hold a considerable stake in the undertaking, it behoves the executive to keep their constituency well acquainted with the position and progress of the enterprise.—A SHAREHOLDER.

TESTING HYDRAULIC TESTING MACHINES.—A copy of the letter should have been forwarded to us for last week's Journal: it would then have been published.

ANGLO-CALIFORNIA GOLD MINING COMPANY.—To my surprise, I have received notice of a call of 3s. per share on the shares I held in this company, when I thought it had been finally wound-up, as I paid a call of 3s. per share in December, 1858, which the liquidators said would be sufficient to enable them to wind-up the company at an early date; and now the shareholders, after the lapse of nearly six years, are called on to pay 3s. per share more. Can any reader inform me if this is the usual mode of winding-up companies when the shareholders pay their call, and expect it to be final, surely there must be some mismanagement somewhere.—S. N. N.: Yorkshire.

WHEEL COLENSO.—I observe Notice in last week's Journal, signed "E. H." (Goldsmith), stating that he had, from strict enquiries, found out that no discovery had been made on a lode in the above set. For the sake of all parties concerned, I beg to say that I inspected the property a few days since, and that, in a shaft sinking on what they call the No. 4 lode, about 12 fms. from surface, the lode was from 3 to 5*½* ft. wide, and from which I broke some excellent stones of rich grey copper ore. The lode is of great promise for the production of mineral at deeper levels.—HENRY JAMES: Redruth, July 20.

MINING BOOK-KEEPING.—"X. X." enquires what work on book-keeping (by double entry) is best adapted for mining and other companies? We were not aware that works on book-keeping ever formed part of a public company's set of books, it being usual to employ a book-keeper of practical experience. Many works on book-keeping have been published, but they are not worth consulting, as more information could be acquired in ten minutes from an accountant in charge of a set of books than in as many years from treatises on the subject, most of which are perfectly unintelligible to those who have not previously learned what the treatise pretends to teach. The art is very easily acquired in the counting-house, and it would be absurd to order a man without counting-house experience to open a set of books on the system of double entry.

NORTH SHEPHERDS.—In your City Article a few weeks ago a favourable opinion was expressed with reference to this property, the shares at the time being about 5 to 5*½*. It was then stated that, although the undertaking did not possess the fashionable title of "Chilverton," yet that its prospects were not inferior to any of the mines in that district, West Clovertown, of course, excepted. Upon these statements, I became interested in the mine; but I now find, according to last week's Journal, that "North Shepherds are flat at 3*½* i.m." It would be satisfactory to myself, and, doubtless, to others, who have no means of obtaining information except through the columns of the Journal, to know the reason of the serious relapse in the market value of the shares. I am perfectly aware that it is a mine most respectably conducted; but holders require some reassuring testimony that the development of the property is satisfactorily progressing.—W.

ST. JEW UNITED.—The initiatory progress of this company appeared to be in every respect all that the most sanguine could possibly desire. At the first meeting all that was required was more stamping machinery, to reduce the illimitable quantity of rich stuff embraced within the limits of this extensive set—the argument adduced was that it was the pluriel productiveness of the mine which caused the directors to recommend an increase of capital, to enable them the more speedily and economically to turn to profitable account the untold riches of their mine. I have not had sufficient boldness to put the question before; but I would now, after having indulged in pleasant hopes for a period of something like three years, take the liberty of enquiring what are the fruits?—SHAREHOLDER.

BURTON COFFER COMPANY.—Can any reader oblige me with some particulars of the position and prospects of this company? On April 16 it was announced that the applications for shares were in excess of the number to allot; and now we are told the Heddon Mine is disposed of, "owing to an insufficient number of shares having been taken up?"—SHAREHOLDER.

SOUTH ST. IVES.—Your correspondent, "An Old Tinner," is not without reason in congratulating the persons who have been fortunate enough to obtain the grant of this seat, so long coveted, both for its geological character and its local position. Already I see they are obtaining tolerably good intimations of the success that awaits them; in the fresh discoveries made in the mines north and south of their seat; and the most experienced miners will agree with the "Old Tinner" and myself in anticipating great results from the operations in the South St. Ives.—ANOTHER TINNER.

THE STEAM-ENGINE INDICATOR AND DYNAMOMETER.—In a recent number of the *Scientific American* I noticed a review of a book bearing this title, in which it is remarked that the intelligent engineer who aspires to become something more than a mere "stopper and stater" takes every opportunity to increase his theoretical knowledge; for without a union of both practice and theory but little substantial progress can be made. In looking at a steam-engine in operation, we see nothing but the outward movement. It may turn its centres smoothly and without jar, and be apparently in excellent order; but when we ascertain what is transpiring within the cylinder, by means of the indicator, it may be found that twice the amount of fuel is consumed to do the work that is necessary. It is for the purpose of ascertaining whether an engine is doing what it should that the indicator is provided, and no establishment that burns 50 tons of coal in a year should be without one. Engineers should make themselves familiar with the instrument, and extend its use as much as possible, and greater economy will be the result. The work is clear and lucid to those who study for information, and not curiosity. It is illustrated with diagrams, showing defects in engines, pointing out the cause and cure, and explaining the principle on which the indicator works, so that the student not only knows that the diagram is made in such and such a manner, but also why it is so made. Can any of your readers refer me to a similar work published at a reasonable price in this country, or briefly explain in your column the use of the indicator, and how it is to be used?—AS ENGINEER: St. Agnes, July 18.

MOTIVE POWER FROM WATER—"J. A." (Llandilo).—Where there is a moderate fall of water, the turbine is the most economic water motor yet introduced. It possesses many advantages over ordinary water-wheels, as has been frequently explained in the *Mining Journal*. Where the current of a river is the only water at hand, of course the undershot-wheel is the sole motor available. We cannot pronounce an opinion as to what manufacturing makes the most efficient turbines. Following the alphabetical

arrangement, M'Adam Brothers, of Belfast; Schiele, of Oldham or Manchester; and Williamson, of Kendal, are amongst the best makers.

GREAT WHEAL ALFRED.—In reply to the enquiry, signed "W." (Dublin), in last week's Journal, I beg to say I have no letters unreplicated to. The shareholders will note that the engines and remaining materials are, in another column, advertised for public sale on August 9, with a view to winding-up the affairs of the company, and making a final distribution of the assets as early as practicable.—D. COHEN, Sec.

* * The MINING JOURNAL is published in time for dispatch by the early mails on Saturday, and should be delivered with the usual morning papers of that day. In cases of irregularity, we recommend that orders be given to Messrs. Smith, or other active agents, who will readily undertake to supply it.

THE MINING JOURNAL
Railway and Commercial Gazette.

LONDON, JULY 23, 1864.

A case of considerable importance in connection with COLLIERY OPERATIONS AND THE PREVENTION OF ACCIDENTS THEREIN was heard at the Newport Petty Sessions on Saturday, the result being a decision which is, in effect, "that although furnaces and furnace ventilation are necessary to the safety of a colliery, the owners are not to be compelled to light fires in such furnaces until after a very fatal explosion has actually occurred in the pit." In the case in question, Mr. THOMAS WM. RHODES, the proprietor of the Risca Collieries, was summoned for non-compliance with the award of Mr. G. C. GREENWELL, made on Oct. 21, 1861, and varied by mutual consent on Dec. 17, 1861. Mr. GREENWELL found "that the quantity of air produced by the machine (when in good order) employed in ventilating the mine, is, if properly conducted, sufficient, under ordinary circumstances, to prevent the accumulation of dangerous gases. He did not approve of ventilating by machinery, especially when single, as being liable to accident and derangement, because during its suspension, from any such cause, the mine would be unventilated; and moreover, because in the event of the blowing away of the anerometer by an explosion, there would be no means of ventilation so as to afford assistance to those in the mine, whereas in a furnace-shaft its heat will maintain the ventilation for a long time. And he did not consider it necessary to safety that the deep shaft, recommended by the Government Inspector, should be sunk, but either—

A. That the present upcast shaft should be sunk to the level of the bottom of the coal shaft (thus producing a shaft of the same depth), and communication made between the bottom of the shaft so deepened and the present returns by means of a stone drift and sufficient furnaces applied; or, B. That similar furnaces should be placed at the bottom of the present upcast shaft, and a ventilating tube or chimney erected upon the shaft of such a height as to produce the same length of hot column; or, C. A combination of these modes by sinking the shaft to a less depth, with a shorter stone drift, and erecting a shorter tube or chimney, the entire column being the same. On Dec. 17, 1861, Mr. GREENWELL wrote a letter to the Government Inspector, stating that when his award was made the only pit at liberty capable of being converted into a furnace upcast was that now used as the upcast, upon which the ventilator is placed. He had since requested to examine and report on the colliery, as to its general and commercial arrangements, and found that some alterations were desirable which, carried into effect, would leave the present pumping-shaft, near to the Black Vein Pit, entirely at liberty to be converted into a furnace upcast of the same depth as proposed and required by his award. This substitution would be attended with two or three important advantages; it would be available in a shorter time, it admitted of a more easy application of "dumb drifts" and fresh air feeding, and was also in the best position for the underground engine; the heat of the boiler fires would aid the ventilation, and the principle remained precisely the same as in the plan already proposed, both as regards the ventilating power and the depth of upcast.

In his examination before the magistrates, Mr. GREENWELL said that when he was employed by Mr. RHODES as consulting engineer, the furnaces were nearly finished. During the time he was so employed there he continually recommended the enlargement of the air-ways, and he resigned because Mr. RHODES would not carry out his recommendation. He then entered into details of the result of various experiments which he had made at different times to test the quantity of air produced. The greatest quantity of air was produced at the last two experiments he made in August, which was as follows:—On Aug. 4, the furnaces were lit, and the quantity of air produced at that time was 56,544 feet going round the workings. On Aug. 27, the ventilator was set to work, going nine strokes per minute (all that it safely could), when the quantity of air produced by that means was only 41,321 feet. At that time the air-courses had been improved, but wanted a great deal more improvement, which he gave orders for, but Mr. RHODES wrote forbidding anything further being done; and when witness found that to be the case he resigned. If the air-courses were properly enlarged, he had no hesitation in stating 70,000 or 80,000 feet of air would be produced.

On July 13, 1863, Mr. GREENWELL addressed a letter to Mr. COLEMAN, the official liquidator of the colliery affairs, in which he stated that the works required by the arbitration, as amended Dec. 17, 1861, with the sanction of the Right Hon. the Secretary of State, are now complete. It may be further stated that the works recommended by him in his report of Nov. 27, 1861, which involved the amendment of the arbitration above referred to, have been also completed. In a letter written a few days after to the Government Inspector, Mr. GREENWELL stated that the arbitration work at Risca was finished. They were at work with the ventilating machine; the air-ways were in progress of enlargement, and he trusted would, ere long, be of sufficient size for furnace ventilation. He then continued—

"As, however, the award pronounces the ventilation produced by the ventilator sufficient, I believe the requirements of the Act are complied with, and the furnace is ready in case of breakage." Mr. GREENWELL admitted having written those letters, and said that their contents were true; the furnaces have been erected, but not applied, and it is of that which the Government Inspector complained.

The Bench decided that the award had been complied with.

The desirability of embarking in mining enterprise, upon the sound and unfailing principle adopted by life and marine assurance societies—that of distributing the capital employed over the greatest possible number of risks—has been urged by everyone whose practical knowledge of the subject entitles their opinion to respect, and there is not an instance on record of a capitalist, with ample means, whose investments have been made upon this principle who has failed to realise large profits, and where the distribution of risk has been aided by experience in connection with mines, enormous riches have been acquired. But it is obvious that a large amount of capital is indispensable to the successful application of the principle, and thus it is that the small capitalist has hitherto embarked in mining at such a disadvantage, that he has not unfrequently failed to obtain average profits, whence some distrust for mining has resulted; henceforth the small capitalist will be placed upon an equal footing with the large one in mining adventures, and thus the development of the mining and metallurgical resources of the country will become attractive to all classes.

When less familiar than at present with the enormous profits paid as dividends by the several financial associations, we made a comparison of the profits of a series of selected mines, as compared with those of the financial associations, and showed that mines were the more desirable investment, where ample capital was employed. A financial association has now been formed—the MINING FINANCIAL ASSOCIATION—devoted entirely to mining, quarrying, and metallurgy, based upon the indisputable argument that if financial undertakings, applied to land and other speculations, yielding only from 4 to 6 per cent. return as dividends to the shareholders from 50 to 70 per cent. financial undertaking applied to mining, which yields an average from 12 to 15 per cent., ought to realise proportionate gains. This would enable the Mining Financial Association to return the entire capital embarked about thrice every two years. As some of the best mines return the entire capital monthly, and many from twice to six times each year, it would appear the anticipations are not unreasonable.

But apart from whatever attraction the Mining Financial Association may have as an investment, a feature has been introduced, the advantage of which will be at once appreciated by all holders of mine shares. It has been arranged that the shares in any mine whatever shall be accepted, in lieu of cash, in exchange for the shares of the association, the liability to

future calls being fixed in proportion to the prospects of the mine; and as the association is formed for the mutual benefit of the shareholders as mine adventurers, and not for realising premiums in dealing in the shares of the association, no better arrangement could have been conceived, since it is alike beneficial to the mining company whose shares are transferred to the association, to the shareholders making the transfer, and to the association itself. It might be objected that the association would have more shares undeveloped than in any other mines offered in exchange for its own; but very little consideration will show, not only that this is not likely to be the case, but that such transfer would not prejudicially affect the Mining Financial Association, because, as an example, it may be remarked that shares in Wheal Disappointment will only be exchanged for shares in the Mining Financial Association with 10 per cent. paid up, and if the directors find that the disappointment is likely to be permanent, they will be at once relinquished, or otherwise disposed of. But in practice comparatively few of this class of shares would be offered, as capitalists would not buy mine shares to exchange for those of the association; the majority of the shares offered would be those upon which the holders have long continued paying calls, but are desirous of increasing their power to aid the development of the mine. The advantage to the association is that its shares will be better placed, that shares will be obtained upon favourable terms, and that the risks undertaken by the association will be distributed to the greatest possible extent, and consequently reduced to the minimum.

The advantage to the shareholder is that he will not increase his liability to call, whilst the share in the profits of the Mining Financial Association will come in as a set off. This will be at once understood when it is explained that the holder of mine shares, who has exchanged them for shares in the Mining Financial Association, will be receiving dividends upon 10, 20, or 30 per cent. of the nominal value of the shares, according to the class of share he receives, whilst he will not be troubled for larger or more frequent calls than he would have had to pay upon his unprofitable mine shares. It is not unlikely that mines in which the association is a large holder, will come into profit more speedily than general mines of equal promise, because no impediments will be permitted to result from want of punctuality in the payment of calls. The board of direction is an influential one, and as it is provided by the Articles of Association that the directors remunerated shall be in a great measure dependent upon the profits realised for the shareholders, there is every inducement for them to proceed with energy and circumspection.

PULVERISING ORES.—Mr. Chas. Pengilly, of Bodmin, has provisionally specified an invention, which consists in having a system of conical, tapering, or partly conical or partly tapering, crushing rollers, the largest diameter of these rollers to be at the bottom or exit end, in order that the open spaces between the rollers may be larger at the top or entrance place, where the stuff to be crushed is first introduced (of large unreduced size), and may gradually decrease in size till at the bottom or exit; the rollers may be so close together that nothing but very fine particles can pass through, although the extent to which the opening shall be contracted must depend, of course, upon the fineness of the pulverising required. The pulverised material will pass through at the bottom or exit place, and can be from time to time removed therefrom. The rollers are intended to be corrugated in slanting lines or otherwise, and the slant of the corrugations of one roller should cross those of the rollers working against it, as thus ×, whereby greater reducing power will be obtained but near the bottom the rollers should, in many cases, be perfectly plain, and free from corrugations.

DEODORISING PETROLEUM.—Some improvements in deodorising petroleum and other mineral oils have been provisionally specified by Mr. John Fottrell, of Liverpool. The invention has for its object the treatment of petroleum and other like mineral oils, for the purpose of depriving them of their present unhealthiness and even offensive smell when in a crude state, and consists in adding to the crude oil chloride of lime, by preference in a state of fine powder, which may be done in the wood much in the same manner that fixings are mixed with wine. The advantages to be derived from this process are—firstly, its simplicity; secondly, its cheapness; thirdly, its not being capable of injuring, but rather improving, the quality of the oil; and, fourthly, the facility with which it can be applied to the oil on board the vessels importing it, as the bungs of the casks can be there removed, the remedy applied, and the obnoxious smell almost immediately destroyed—and thus the importation, especially of the Canadian crude oil, which is of great commercial importance here, but which, in consequence of the strong odour, has been objected to by many, can be carried on *ad hoc*, and without the possibility of any deleterious results.

MANUFACTURE OF RAILWAY BARS.—The employment of railway bars composed wholly or in part of Bessemer steel renders it desirable to use the old rails for the manufacture. Mr. Bessemer, therefore, proposes to proceed thus:—The converting vessel having been highly heated in the usual way, and the residue of the fuel discharged therefrom, he proceeds to put into the vessel the old rails intended to be remanufactured, such rails having previously been cut into convenient lengths, and brought up to a red or to a welding heat in any suitable furnace. He then, without loss of time, runs or pours into the converting vessel some molten crude iron; as soon as the molten metal is run in the air is supplied, until the pieces are melted down and form part of the fluid mass, which is then converted into rails in the usual manner.

PRESERVING TIMBER FROM DECAY.—The experiments of Mr. Crepin, recorded in the *Annales des Travaux Publics de Belg*

tion of the hydrocarbons is thereby effected; they are conducted thence through one or more pipes to any suitable purifying apparatus. Several such resorts may be employed in combination, or they may be arranged separately, and they may be placed in a vertical, inclined, or horizontal direction. The invention is capable of some modification in detail, without departing from the principle.

STEAM FUEL—SUBSTITUTES FOR COAL.

The fallacy of the proposition to employ petroleum as a substitute for coal in the generation of steam daily becomes more evident, notwithstanding the continued efforts which are made to propagate erroneous assertions as to its economy; neither petroleum nor mineral oil of any kind can successfully compete with coal as a steam fuel until coal is twelve times more costly than at present, or until petroleum can be sold retail at less than 3d. per gallon. The objection applies equally to natural and artificial oils, although, in the latter case, the cost which would necessarily be incurred in its manufacture would render its employment so much the more disadvantageous. From time to time attempts have been made to utilise the products of the Pitch Lake of Trinidad, by employing the products that are obtainable from it by distillation, but hitherto the results have been anything but satisfactory; yet, amongst the more recent opinions published is that of Dr. Konrad Stolmeyer, of Port of Spain, in which he advocates the use of crude oil from Trinidad pitch, but he has evidently been guided only by the interest of Trinidad in making his assertions, and is altogether unsupported by either practical results or experiments. He maintains that liquid fuel, such as oil, whether vegetable or mineral, whenever or wherever obtainable at a price not exceeding twice the cost of coal—for a quantity equal in power for evaporating water to a given quantity of oil—is preferable to coals for oceanic steam navigation for various reasons. He considers that there would be a saving of space and weight, because 40 gallons of crude oil from asphalt are considered equal to 1 ton of coals. As the oil varies in density and power, it would be quite safe, he thinks, to take, for practical application on a large scale, 50 gallons of crude oil, average specific gravity 0.900, as an equivalent to 1 ton of such coals as are usually supplied to steam-vessels, though experiments in the laboratory point to a lesser quantity. This would reduce the weight of the necessary fuel for a sea voyage to one-sixth. By constructing tanks with reference to the shape of the vessel, the necessary space required would be reduced to one-fourth. Now, even assuming Dr. Stolmeyer to be correct in his proportions, it must be remembered that he makes no mention of the first cost of the tanks, which would be large, nor of the expense of keeping them in repair.

The accuracy of his next assertion it is unnecessary to question, since the advantage is more imaginary than real; he states that the time in taking in fuel at ports of departure and intermediate stations would be reduced to about one-tenth—oiling instead of coaling. One hour would be sufficient to deliver, through suitable pipes, a quantity of oil equal to coals which would require ten hours to take on board; he considers, moreover, that the number of men necessary to attend to the fires could be reduced to one-fifth, and that their labour would be comparatively easy. This may be true, but the labour saved at the fires would have to be expended in keeping the feeding apparatus in repair. Mr. Stolmeyer states that perfect combustion being possible with liquid fuel, no smoke would issue through the chimneys. This is a theoretical assumption only, and perfect combustion is also possible with all the ingredients of coal capable of producing smoke. He considers there would be less liability to accidents from fire, because spontaneous combustion in the tanks is impossible, but surely he cannot forget that a very slight leakage would soon render the whole ship highly inflammable. He asserts, but we are not acquainted with his authority for stating, that the time required to get up steam would be reduced to one-half, and that from one to two minutes would be sufficient to extinguish the fires. He anticipates that there would be a reduction of space in the fire-room, and probable reduction in the size of boilers. He says a larger quantity of fuel could be kept on hand at foreign stations, or in anticipation of hostilities, when coals and fuel generally for steamers of war might be declared contraband of war, without fear of deterioration in quality. Close tanks and reservoirs would supersede coal-sheds, with their attending inconveniences and liabilities to being fired. Now, it can scarcely be supposed that Dr. Stolmeyer knows so little about mineral oils as to make these statements in ignorance. The deterioration of mineral oils is three times that of coal, and as to the tanks being more exempt from damage from fire than the coal-sheds, the accuracy or inaccuracy of the assertion would depend entirely upon the material of which they are made—made of the same material, the advantage would be altogether on the side of coal.

So many objections to the use of petroleum as a substitute for coal existing, it is scarcely necessary to consider Dr. Stolmeyer's remarks upon its application and supply, except, perhaps, to show that his opinions upon this portion of the subject are equally vague and unsatisfactory. He states that there are various modes by which the liquid fuel could be applied. In the beginning, before the present construction of boilers, fire-rooms, &c., can be modified and properly adapted to a new material, which is like all new contrivances, a matter of gradual development, it might be used as an auxiliary to coals. Jets of liquid fuel, finely divided by a rose, similar to the ends of watering-pots, could be thrown at intervals of a few seconds, by means of a force-pump, over the burning mass. The coals would absorb the oil and would transform it into flame without falling into ashes. Later, upright tubular boilers would replace the present horizontal boilers. Each tube would have its separate fire (lamp), the tube acting as the chimney, similar to the chimneys of the kerosine and other mineral oil lamps. He considers that the ingenuity of mechanical engineers would soon establish a simple, effective, and almost self-acting mode to supply the liquid fuel as fast, and no faster, than it could be converted into flame; and he continues that the next question would be the supply, since it is of little use to invent applications for a material, if that material is not almost inexhaustible for practical purposes. Without taking into consideration the fact that oil can be extracted from coals if all other resources were exhausted, the discovery of the oil springs in North America, which have already furnished millions of gallons of crude oil, are likely to keep the supply at a sufficient low rate as to price to make liquid fuel an economical substitute for coals where weight and space are of importance. But even if these oil wells should become dry, and no new ones be discovered—though called oil springs they cannot last like springs of water, but must have a definite quantity, and become dry in time—we have another source of supply in the Island of Trinidad, which, from its vast magnitude, the mass of fuel, flame, and light which it contains, can be justly called the "black Koh-i-noor of the British Empire." We fear that few will follow Dr. Stolmeyer in such a designation, and that a far greater number will avoid the use of the fuel, at least for marine purposes, from the more than ordinary probability that the ship using it will become a Koh-i-noor, in so inconvenient a position that from the mountain of light to the valley of death the passage will be certain.

To turn from an opinion based merely upon theory of a most unacceptable kind, by a gentleman whose especial interest it is to secure a sale for an article produced in his own neighbourhood, to that of another who asserts merely that which he has actually proved, we find that no hope whatever can be reasonably entertained of burning petroleum as a steam fuel, at least for many centuries. Dr. R. A. Fisher, of New Haven, Connecticut, has undertaken a series of careful experiments to ascertain the value of petroleum burned by Mr. Hill's method, as compared with anthracite coal for generating steam. By Mr. Hill's process the petroleum is evaporated in a close box, steam is mixed with the vapour, and the vapour is burned as it issues from batwing burners. Dr. Fisher burned petroleum by this plan several hours under a small boiler, and measured the water evaporated. He then burned anthracite coal under the same boiler for four hours and thirty-five minutes, and measured in this case also the water evaporated. The steam was generated under a pressure of 40 lbs. to the square inch, and hence from a temperature of 268°. After making proper allowances for the heating of the water, the results were 7.81 lbs. of water at 268°, converted into steam by 1 lb. of petroleum; 4.89 lbs. of water at 268°, converted into steam by 1 lb. of coal—or, 2000 lbs. of coal gave the same heating power as 1252.2 lbs. of petroleum.

A result more conclusive than this against the use of petroleum as a steam fuel will, probably, not be required; but it may be well to state that Dr. Fisher calculates that with coal at \$10 per 2000 lbs. (2L. 5s. per ton), petroleum of the quality used in the experiments just described, in order to compete with coal, must be furnished at \$10 for 1252.2 lbs. (198.69 gallons), or at 5.02 cents (2d.) per gallon. But if burned in the apparatus of Mr. G. Hill, it must be furnished at a still lower figure; for while with coal the whole amount of steam generated can be used to drive machinery, in Mr. Hill's apparatus a large proportion of the steam produced is required to assist the combustion of the petroleum. No experiments were made to determine exactly the quantity of steam thus employed, but

from the fact that the coal evaporated but about 4 gallons of water per hour while the petroleum evaporated about 6 gallons, without causing more steam to pass through the safety-valve, we must infer that the steam produced from 2 gallons of the water per hour (or about one-third of the whole amount generated) passed through the steam feeding-pipe into the retort, and thence to the burners. In view of all the facts elicited by these experiments, the conclusion is, that at the present New York prices of petroleum and coal (coal 2L. 2s. per ton, petroleum 2s. per gallon), the cost of fuel in Mr. G. Hill's process, of burning the vapour of petroleum in contact with superheated steam, is about ten times as great as when generating steam with coal.

Dr. Fisher observes, upon the authority of Tate, that the oils (petroleum), as found in nature, contain as nearly as possible an equal number of equivalents of carbon and hydrogen. This would make the composition of crude petroleum nearly identical with oil of turpentine. M. Favre and Silbermann, in their refined researches already quoted, found the heat evolved by the perfect combustion of 1 lb. of turpentine to be sufficient to raise only 108.52 lbs. of water from 31°—212°. This, then, is about the maximum calorific power of crude petroleum—11.64 per cent. greater than that of anthracite coal. Therefore, whether the perfect combustion of crude petroleum be effected by burning it directly, or after having converted it into gas; whether it be burned in the state of vapour alone, or mixed with air, or "superheated steam" (as in Mr. Hill's apparatus); or though the mechanical arrangement consists of "a series of corrugated recesses upon a vertical cone of cast-iron placed in the furnace" (as contrived by Messrs. Shaw and Linton), it is impossible to develop a greater calorific power than that with which it has been endowed by Nature—that of heating about 108 times its weight of water from 32°—212°, a calorific power not quite 12 per cent. greater than that of anthracite coal; it is, therefore, he concludes, fallacious to suppose that at the present relative prices of coal and petroleum this substance, by any "improved method of burning," can be made to generate steam as cheaply as coal. Of the truth of this Science has already convinced those who have faith in her teachings; accurate experiment will in due time convince those who are satisfied only with tangible evidence.

REPORT FROM NORTHUMBERLAND AND DURHAM.

JULY 21.—The coal and other trades continue good for the season, although there is a deal of excitement in connection with the meeting of the Royal Agricultural Society, yet the only holiday at the large works is to be one day during the week. The progress made here by coal-cutting machinery is only slow, still increased interest is taken in the subject. Messrs. Phillipson and Dees, of Cassop Colliery, Durham, have invented a machine of this kind. A suitable framing is made to support a large screw, which works through a screwed nut or block, moving in grooves; to this block a pick or cutter is affixed, and worked by bevel wheels, which cause the screw to revolve. The direction of motion is reversed when necessary by a clutch worked from the main shaft of the machine by eccentric, or other suitable means. The bevel-wheels receive motion from a pinion-wheel, driven by another wheel and pinion, which are attached to the same shaft. This last-mentioned pinion is driven by a wheel running upon another shaft, to which another pinion is attached; this pinion receives its motion from a bevel-wheel on the main shaft of the machine. One or two fly-wheels may be fixed on the main shaft to assist the working of the machine.

At the Royal Agricultural Society's show at Newcastle a very ingenious and promising invention—the Photogenic Gas Apparatus—which was described some months since in the *Mining Journal*, was shown in the implement yard. The apparatus has been fitted up by Messrs. Mather and Armstrong, of Newcastle. The light given by M. Mongruel's process is tolerably good, but appears to be rather pale; at any rate, it did not appear very brilliant. The photogenic gas is an admixture of atmospheric air with the vapour of the volatile spirit obtained in refining petroleum and similar substances. It is anticipated that the light will be cheap, differing little from the cost of ordinary coal gas, and is remarkably free from any deleterious substance, so that it can in no way affect the health of persons using it. But the most remarkable advantage connected with the process is the small space it occupies, and the very small cost and simplicity of the plant required. It is, therefore, adapted for the use of farmers, and also small private establishments, and there is little doubt it will also be extremely useful for coal and other mines, as the apparatus can be erected underground with the greatest facility, being entirely free from heat. M. Mongruel claims for it that in consequence of the absence of ammonical and sulphuric acid vapours, it does not injure the paint, gilding, or furniture of apartments; and that it is inexpensive. The apparatus has, however, only been used hitherto to enrich ordinary gas; it is only necessary that the gas, as it leaves the meter, should pass through the carburetor to the burners, in order to acquire an increased illuminating power of from 150 to 400 per cent., while the consumption of the gas itself is diminished by at least one-fourth. These gas carburetors are fitted up to work from three to fifty lights, and upwards, the cost varying from 2L. 10s. to 7L. 10s. for the number of lights above mentioned.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

JULY 21.—The reduction of 20s. per ton in the price of iron has had the effect of sending more orders to the leading makers, and in consequence tending to increase the difficulty of reducing wages. The heat of the weather has operated in the same direction, as puddlers can do but little work with so high a temperature as has prevailed for the last few weeks. The question of wages must shortly be grappled with, as at present rates, and especially if pig-iron should rise, as it will if the demand increases, the trade will not be remunerative. The existing strike go on, and no signs of accommodation appear. What an outcry would be raised if, from the mutual obstinacy of buyers and sellers, the butter, eggs, and butchers' meat were allowed to become putrid; and yet human labour, and its product capital, are allowed to lose their value by such a dispute: and, as in the case of other things not turned to profitable use, their putrescence sheds around a baneful influence, and physical evils and moral distempers are bred of this artificial arresting of the current of human industry. The question is acquiring increased interest, and labour-saving machines and processes are earnestly looked to.

The elevation to the ancient and honourable office of High Sheriff of Capt. Thorneycroft, only son of the late Mr. G. B. Thorneycroft, the well-known ironmaster, and founder of the eminent firm which bears his name, is one of many recent recognitions of positions recently won by industry, apart from that conferred by hereditary descent. Captain Thorneycroft has declined the pressing wishes of his friends to have a public procession, but in addition to a most munificent hospitality, he has followed the example of his father, by adding 1000/- to a like amount given by the late Mr. Thorneycroft, as first Mayor of Wolverhampton, for the interest to be annually expended in purchasing blankets and flannels for poor widows. It is gratifying to see wealth earned by honourable industry wearing such ancient honours, and dispensing such noble munificence. The July Assizes have again been free from any mining causes. It would appear as if this formally most prolific source of litigation were getting exhausted.

REPORT FROM DERBYSHIRE, YORKSHIRE, AND LANCASHIRE.

JULY 21.—The sudden and unexpected reduction in the price of iron at the last quarterly meetings was a surprise which few expected, but it had the effect of inducing a larger number of purchases to be made, principally on a speculative demand; and, all matters taken into account, we are in a position to report a continued active trade. There is also a good enquiry for machinery for exportation, and the orders which are given out, and which will require a considerable time to execute, indicate that there will be a continued active demand for some time to come. The steel and cutlery trades are brisk, and, indeed, it is said that all departments of the staple trades of Sheffield are in an improving position. There is an unabated demand for coal, and a ready market is found by most merchants for all that can be got within a given time. This arises from the lock-out of colliers in South Yorkshire, which has prevented the coalowners in that district from being able to execute the orders they had on hand when it took place. It is to be regretted that unpleasant matters have taken place in the Barnsley district, not between the lock-outs and those who are designated "black sheep," but by idle mobs of persons who congregate there. A newly-imported lot of miners have been introduced at the Oaks Pit, and it has been the business of some who by their acts have little sympathy with those who are locked-out. Several of the persons who have caused the disturbances have been apprehended, and some half-dozen persons committed for periods extending from seven days to one month, each with hard labour. A number of the families of the men locked-out are still living under canvass at Hoyle Mill, in great privation. The delegates are still out in various parts of the country, soliciting aid from different trades, which is, on the whole, cheerfully rendered; and it would appear to be the determination of the lock-outs not to give way till they get their claims from the masters, who, on the other hand, are equally determined not to give way to the demands of the colliers, if labour can be had at any price from the other colliery districts. The present state of affairs is truly

awful, and what the result will be in the end it is difficult to imagine, and, indeed, no one can possibly foretell. There is the strongest determination by each party not to give way, and the question is now really reduced to one of funds—namely, whether the purses of the masters can effectually combat with the aid received from all country organised trade societies, and thus obtain the mastery. The battle is fierce, and the struggle fearfully terrible.

We have nothing to notice connected with the lead mines this week. Speculation in shares is almost at a stand-still.

REPORT FROM MONMOUTH AND SOUTH WALES.

JULY 21.—The Iron Trade of the district is in rather an unsettled state, owing principally to the want of unanimity in the Staffordshire trade. So long as a fair demand, however, exists Welsh iron will not be much affected by the reduction; and should the new American tariff be a little less prohibitive than the last, there is no doubt that the shipments to New York will be considerable during the next few months. Steam coal commands a moderate enquiry, but prices show a downward tendency, and buyers are able to enter into contracts on more favourable terms than has been the case for a long time. House coal and coke remain without any material alteration, and merchants have an average number of orders in hand. The Tin-plate Trade continues to suffer from the falling-off in the American demand, and the current quotations are with difficulty maintained. Scarcity of water has become so general at the various works of the district, that hundreds of hands are already on short time, and matters will soon be in a worse state unless a copious fall of rain should take place. At several establishments where water-power is extensively used, not half the usual quantity of work has been turned out during the last month, in consequence of the want of water.

The Brecon and Merthyr Company have been successful in obtaining their bill for the construction of the Ystrad branch, and for running powers over the Aberdare branch of the Great Western. When the powers contained in this bill are carried out, Newport will then be placed in equality as advantageous a position as Cardiff for the shipment of Aberdare coal.

At the Narberth Petty Sessions, on Thursday, Thomas Cole and Thomas Handcock were summoned for a breach of colliery rules, by opening their safety-lamps, thereby endangering their own as well as their fellow-workmen's lives. The defendants were employed at the Bonville's Court Colliery, and the complaint was preferred by Mr. John Phillips, the overman. The case being fully proved, the magistrates expressed an opinion that defendants had been guilty of such a serious infraction of the law that they did not feel justified in inflicting a fine. Defendants were accordingly each committed for three months, with hard labour.

Milford Haven is gradually emerging from the commercial isolation which has long characterised the port. The bills for the construction of docks at New Milford and Hubberston have received the assent of both Houses of Parliament, and it is in contemplation to establish several iron shipbuilding yards. Messrs. Watson and Wembury have already commenced to convert the old dockyard into an iron shipbuilding establishment, and other capitalists have expressed their intention of following the example. This shows that the unequalled natural advantages of the harbour are beginning to be appreciated by the commercial community, and there is no doubt that good times are not far distant for Milford.

The Pembroke and Tenby Railway has been completed to Pembroke Dock, and the line will be opened for both passenger and mineral traffic immediately the Board of Trade Inspector's certificate has been obtained.

The case of the Government Inspector against the proprietor of the Risca Colliery, which has excited much interest in the district, has been decided against the Inspector, the magistrates upon the bench being the Rev. T. Pope, Captain Phillips, R.N., Mr. Gratwick, and Mr. John James. The award which it was sought to enforce ordered the erection of furnaces, to be used as a substitute for the thermometer then in use, and the said furnaces having been erected the bench considered that the award had been complied with, and that it was unnecessary that the furnaces should be lighted until after an explosion of sufficient force to blow away the present mechanical ventilator, or at least disable it, should occur. The furnaces may then be lighted, should it be considered advisable to make attempts to rescue any men that may be entombed in the pit. The magistrates, after a few minutes consultation, pronounced a decision in accordance with this opinion, and dismissed the case.

SWANSEA.—There is little improvement to report in the state of trade, which remains dull and sluggish in all branches. The several new railway lines in the district are being pushed forward vigorously. The Harbour Trustee have closed an agreement with Mr. Abernethy, to furnish the plans, drawings, &c., of the new works for the harbour, and generally to supervise the works as engineer-in-chief, for a commission of 2½ per cent. on the outlay. The trustees have also accepted a tender from the Messrs. Bachelor Brothers, timber merchants, of Cardiff, for the supply of the timber required, and the works will shortly commence, sub-committees being appointed to deal with the question of the purchase of the land required. On Thursday last Mr. Joseph Jennings, of the Arsenic Works, Burrows, was summoned for non-payment of poor-rates. Mr. Jennings showed that he had been rated at 10/- per furnace, on seven furnaces, previous to the new assessment, and that now the authorities very modestly asked him for nearly 200/. What next? It was thought there was some mistake, and the case was adjourned for the committee to look into. I may add that there is a considerable amount of dissatisfaction among the proprietors of the large works at the result of the new assessment, and, in some cases, not without cause. The adjourned inquest, to investigate the cause of the death of the three men who were killed foul-air in an old coal pit belonging to Mr. A. Sterry, near Sketty, took place on Friday evening, and resulting in an open verdict, the men alone being blamed in the matter. One of the workmen in the employ of Messrs. Gilbertson, of the Pontardawe Tin Works, was summoned to the Police Court, on Monday, for having left his work without giving proper notice. Mr. J. R. Tripp, solicitor, on behalf of the prosecutors, withdrew the charge, and the case was dismissed. The joiners' strike is at an end, the masters having agreed to give the increase of 3s. per week asked for by the men.

The arrivals at Swansea include: Queen of the Isle, from Antwerp, with 180 tons of pig-iron; Fanny, from Dordt, with 165 tons of pig-iron; Maid of the Yare, from Antwerp, with 177 tons of pig-iron—each for Mr. W. H. Forrester; Lily, from Bilbao, with 206 tons of iron ore, for Mr. R. Cowell; Navigator, from Cherbourg, with 170 tons of iron ore, to order.

PONTNEWYDD IRONWORKS—(From a Correspondent).—Since the starting of these works by the new company, there have been several breakages in the machinery of a serious character, and this has led to some disagreements among the proprietors of the company. It is expected that the company will be wound-up by the consent of all parties, and the works will then, very probably, fall into the hands of one or two wealthy capitalists.

SOUTH WALES INSTITUTE OF ENGINEERS.

[Continued from last week's Journal.]

MULTIPLE DRILLING FOR RIVETTED BOILERS, GIRDERS, AND OTHER WROUGHT-IRON WORK.

Mr. H. M. MAYNARD read an interesting paper on this subject, in which he states that the fact of drilled riveted work being superior to punched riveted work is now becoming generally understood, and is making a great revolution in most of the engineering factories of this country. For the purpose of illustrating the paper, Mr. Maynard exhibited specimens of drilled and punched riveting, which had been planed through the rows of rivets, to show what takes place. They showed that in punching the holes are left with a certain amount of taper, which necessarily takes place to a greater or less extent in all punched holes, and inaccuracy also occurs through the puncher not being able to have perfect control over a heavy plate, and although somewhat improved by riveting, it seldom happens that the rivets perfectly fill, touching only at intervals, and leaving some plates altogether depending on the friction caused by shrinkage of such rivets in cooling, and when a shearing strain comes upon them they are apt to get loose. Messrs. Kennard's Moveable Spindle Multiple Drilling Machine was then explained by means of the illustrations. In punching holes through a plate or bar, it may be easily seen, on examining the surrounding part of the holes, a certain amount of distortion takes place in the fibres of the iron, indenting it on the top, or leaving the surface concave, while at the same time nearly a corresponding amount of convexity is produced on the opposite side, so that after punching, when two or more plates are put together, they do not lie flat, or close to each other, and require a considerable amount of flattening by hammer or some other means, and this disturbance of the fibres necessarily weakens the iron to a great extent. In illustration of this, an experiment by testing four plates, two of drilled and two of punched, was referred to. The holes were drilled in two of them, and punched in the other two; each was broken separately in tension by means of a lever testing machine. The sectional area was reduced at the part broken 1.5 inch, being exactly the same in each case, and the results showed a mean of 19 per cent. in favour of the drilled holes, and, assuming these experiments to be correct, it

ers of this large bridge (weighing more than 2600 tons), and the powerful machinery for drilling them have to be made, is less than 12 months.

The PRESIDENT (Mr. A. Bassett) said it seemed to him that the weight of material was an important consideration, and from the paper of Mr. Maynard it appeared there was 19 per cent. in favour of drilled as compared with punched work. In point of fact, this was that 100 tons of drilled riveted work was equal to 119 tons of punched work. He should like if Mr. Maynard could give them the relative cost.

Mr. N. SCOTT RUSSELL said there was generally a disposition on the part of inventors and others to push a good thing too far, and he believed such was the case to some extent in the present instance. He was decidedly of opinion that they ought not to substitute drilling for punching in all kinds of work, especially where the plates were small. As a rule, iron could be as well punched as drilled. Mr. Russell had described a successful plan of punching the holes which his father (Mr. Scott Russell) adopted in building the Great Eastern, and it was now carried out at Lloyd's and other places. Where these plates were large, and many were placed side by side, he admitted that drilling was then preferable.

Mr. MAYNARD, in reply, said that where the work varied much, and the pieces were small, punching would then, perhaps, be found more convenient. He saw difficulty, however, in making a machine suitable for every description of work. As to the relative cost, it was difficult as yet to form a correct estimate. If they had a place of work where one machine could do the labour there would not be much difference in the price. Where there was a variety of work it was difficult to form an estimate and the drilling principle must be more extensively adopted before the cost was accurately known. No doubt that punching affected the fibres of the iron, and rendered it less strong, whereas drilling had no influence on the surrounding parts. Since writing the paper he had made experiments on a number of plates riveted, and he found that, so far as the rivets were concerned, the advantage was rather in favour of punching. He attributed this to the action of the sharp edges of the plate on the rivets.

Mr. JAMES MURPHY thought the question at issue was not whether punching or drilling was the best method, but whether a continuation of the principle of drilling by placing a number of plates side by side was not preferable to punching. He remembered that Sir John McNeill invented something on the same principle as the machine referred to in the paper, for the purpose of drilling railway sleepers four at a time. The late Mr. Brunel paid great attention to the matter, and he was decidedly in favour of drilling. Mr. Maynard said in his paper that there was considerable difficulty in handling large plates under the punching machine, but he (Mr. Murphy) saw no difficulty whatever. Two men could well manage the largest plates with the assistance of a crane. He believed that formerly punching was considered about one-fourth the cost of drilling, but with the new machine he presumed that the cost would be about the same.

The PRESIDENT said he quite agreed with Mr. Russell that drilling was not suitable to all cases, but he thought there could be little doubt that it was superior for bridge plates and such like work.

THE COPPER SANDS OF ALDERLEY, CHESHIRE.

Mr. BRIGDEN (the secretary pro tem.) read a paper written by Mr. G. C. Greenwell, on this subject, and the same will be discussed at the next meeting. A vote of thanks was unanimously accorded to Mr. Greenwell, for contributing the paper.

MACHINERY USED FOR BORING ARTESIAN WELLS, AND ITS APPLICATION TO MINING PURPOSES.

Mr. MATHER (of the firm of Mather and Platt, Salford Works, near Manchester) having been called upon by the Chairman, proceeded with a lengthy but elaborate paper on the above subject. His interesting remarks were illustrated by means of gigantic diagrams, working models of improved apparatus, and geological specimens, obtained from public works either completed or in progress. He traced the process of boring for water to most remote ages of antiquity, and explained the process from the Chinese system to the improved methods adopted by French engineers. The Chinese is probably the simplest process known, a twisted rope being attached to the chisel, or boring tool (the ancients originally used wood), which struck the rock. For many years this original application had been used in Germany; but it was almost entirely abandoned now in favour of the rod system; and the French had an idea that the appliances used in boring their Artesian well (at a cost of 14,500£) was the perfection of a boring machine. An endeavour had been made at Moscow to find coal, and the best of boring machinery had been employed, at an expense of about 4500£, but after two years' labour, and achieving a depth of 300 ft., no practical results were attained. The "improved" continental system of well-boring is at the best but a tedious affair. The machine he was at this moment explaining was patented in the year 1855, and he claimed for it the name of "the English system." It was simple in its construction, and might be worked by one man—drill rod and pulley being so easily managed that it might almost be termed a "self-acting" machine; it was not only applicable to well-boring, but might be made of immense advantages in collieries, for air shafts, or for testing the mineral treasures of a country. In 1855, when the present paper was first read to the Society of Arts in London, objections were made to it, and although it was generally admitted to be a great improvement upon the old system, it was then thought that it had not fairly established its claim to consideration. Since that period it had been successfully employed in working through different strata at Middlesex, near Newcastle, where a depth of 1312 feet, had been attained, at an average progress of 3 feet per day, reduced on some occasions to 1 ft. 2 in. per day, on account of the rock through which the cutters had to pass. At Norwich 1154 ft. had been arrived at, the progress being 1 ft. 9 in. per day, against difficulties arising from natural causes. At London, Hull, Bradford, Halifax, Huddersfield, Crewe, Hereford, and other places, several borings have been made, under various geological conditions, with satisfactory results, and the Wearside Iron Company had commenced working one of these machines on June 1. By its means the ordinary strata in any locality might be ascertained, and the mineral ridges hid up in the earth accurately marked; as the telescope develops the unseen recesses of Nature, so might this appliance be rendered serviceable, until the unseen blessings of Mother Earth became ensured to ages yet unborn. It might conduce to the benefit of those engaged in mining operations, and afford comfort and safety to men who are designed to live in the darkest recesses of the earth. Its advantages would most certainly not be lost in Wales, a country most beneficially blessed with all the mineral products of the earth.

Mr. J. MURPHY enquired the cost of working?—Mr. MATHER replied that at Stockport, when working in the red sandstone, the cost had been estimated at 10s. per foot.

Mr. MURPHY: Including the cost of the machine?—Mr. MATHER explained that the practice of his firm was to hire the machine at 5s. per week, and send it to its destination under the care of an experienced man: the parties requiring it provided labourers, smiths' work, &c. At present they had not bored anything larger than a ft. 5 in. hole, but a machine was now in course of manufacture capable of extension to 5 feet. The principle would be precisely the same as the machine he had already described.—In reply to Mr. Maynard, he (Mr. Mather) stated water was necessary to the working of the machine, and the rush of water into the boring apparatus greatly fatigued the engine and rejection of debris.

Mr. J. F. THOMAS (Coleford) enquired whether it could not be made applicable to mines for air—say, 5 feet?—Mr. MATHER replied that he saw no difficulty in increasing it to 5 feet, as the principle of the machine was capable of extension. He thought, however, that if the air-shafts were not made so large they would be found more beneficial: the expense for cutting half-a-dozen smaller holes would be less than for sinking one large shaft.

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Mr. EVANS: Have you any accidents with the apparatus?—Sometimes the cutters get broken, or ground to pieces, when passing through hard rock, but the knives are easily repaired, and are not expensive. The tools can be altered, so as to give a cleaner cutting-edge, according to the strata through which we are boring.

Mr. MURPHY had heard of a system of boring by means of hollow rods, much practised in the South of France, where wells had been sunk through a chalk stratum at very small cost.—Mr. MATHER thought Mr. Murphy was alluding to "Vogel's system"; had it been perfectly successful, the inventors of the present machinery would not have gone to the expense they had done. "King's system" was much more extensively used on the Continent at present.

The PRESIDENT moved a vote of thanks to Mr. Mather, and trusted that he would attend the next meeting, at Swansea.

Mr. MURPHY seconded the proposition, and remarked that it was one of the most important papers ever brought before the Institute. He hoped, like the President, that they would have Mr. Mather present at the next meeting, and, perhaps, than he would be able to give them some information as to the 3-ft. boring.

Mr. MATHER returned thanks, and said he should be happy at any time to give any information in his power as to the working of the machine.

Votes of thanks were passed to the trustees of the Marquis of Bute, Mr. George Fisher, and others, who exhibited models, &c.; to the Mayor (Mr. John Bird), for the use of the Assembly Room; and to the President, for his able conduct in the chair.

After the dinner which followed the business proceedings, the usual loyal toasts were drunk, and the CHAIRMAN (Mr. Alex. Bassett), in proposing "Health and Prosperity to the Mayor and Corporation of Cardiff," expressed the thanks of the South Wales Institution of Engineers for the use of the Town Hall that day. In replying to his own health, the Chairman assured the members that he took pleasure in the success of the Institution, and his readiness at all times to forward the object they had in view. He afterwards proposed the health of those gentlemen who contributed papers to enhance the value of their meetings: but if these papers supplied were not practical, they would be found of very little use. He did not believe that a more practical paper had ever been read than the one they had heard that day on "Boring," for in this part of the country they had not realised any practical results like those they had heard described by Mr. Mather, who had given the fullest information as to the time occupied in the work, and the cost of the engine, in going through the different strata. He had first met with this gentleman at one of the meetings of the Institute of Civil Engineers, and he had liberally responded to an invitation that he would oblige by contributing his valuable paper to the present meeting. He, therefore, begged to couple the name of Mr. Mather with the next toast!—The Contributors of Papers.

Mr. MATHER returned thanks. Whether the Boring Machine he had brought forward would hereafter play a more important part in mining operations in South Wales was a matter of little importance compared with the kindness of the reception he had this day experienced. It was a matter of some importance, perhaps, to those gentlemen who might be engaged in mining speculations, and he trusted that an exchange of ideas might be beneficial in enlarging the free trade of thought, and contribute to the commercial spirit of the time.

During the evening Mr. Mather exhibited the magnesium light, the brilliancy of which excited much admiration.

IRISH INDUSTRIAL EXHIBITION.—Messrs. Courtney, Stephens, and Co., of Dublin, largely engaged in engineering works, chiefly connected with railways, and employing over 250 men, exhibit a model of a bridge, 126 ft. span, over the Ovoca, carrying the Dublin, Wicklow, and Wexford Railway and the mineral tramway. The bridge is very accurately constructed according to the theoretic strength required in every part; the Government Inspector was furnished with the calculated deflection before he tested it, and the result of the experiments confirmed most closely the theoretical deductions. Your bridges of this kind were erected last year, designed by Mr. W. Anderson, a mem-

ber of the firm and honorary secretary of the machinery committee. The exhibition contains a large collection of Culverwell's patent paraffin railway lamps, including a roof lamp just brought out, and the first made for that particular purpose. Mr. Culverwell, who is the manager of the Dublin and Drogheda Railway, has devoted much of his time to bringing paraffin into use in trains in motion, and has successfully overcome the great difficulties caused by the rapid passage through the air.

WROUGHT-IRON TUBES, AND SUBMARINE VESSELS.

The high reputation which has long been enjoyed by the Crown Patent Tube Works (Messrs. James Russell and Sons), at Wednesbury, is well known to the readers of the *Mining Journal*, and that reputation is not likely to be diminished by the extraordinary wrought-iron tubes which the firm is at present manufacturing for the Russian Government. The attention which the Russians are now paying to the obtaining of an efficient and invincible fleet must have been remarked by all; not only has one of the Imperial dockards on the Neva been adapted to the building of iron-plated vessels of every description, but two powerful vessels, the *Smertch* and the *Ne tron Menya*, have already been launched; in addition to this, a formidable fleet of invisible monsters, in the shape of submarine vessels of war, will shortly be afloat. It is for the construction of vessels of this latter class that Messrs. James Russell and Sons have undertaken to supply the tubes—the set for the first vessel are already nearly completed, and as the necessary machinery for their manufacture is now in full working order, it may be anticipated that the remainder of the fleet will not be delayed on Messrs. Russell's account. To afford some idea of the magnitude of the Russian enterprise, it may be stated that the cost of the tubes alone for a single vessel of this submarine fleet will be nearly 9000£. It will contain no less than 38 lengths of wrought-iron tubes of 60 ft. each, having a 13-in. bore, and a thickness of $\frac{1}{2}$ in. The specification demands that they shall be capable of bearing a pressure of 2006 lbs. to the square inch, and to avoid all possibility of failure, Messrs. Russell test every tube up to 2500 lbs. The difficulty of manufacturing tubes of this character can scarcely be appreciated by those unacquainted with the use of them, but it may be stated that the order necessitated the erection of new and powerful machinery, which few manufacturers in the country would have been inclined to undertake. It must be particularly gratifying to Messrs. Russell to find that after a thorough enquiry by the Russian agents at the principal works in Manchester, Sheffield, and elsewhere, with a view to obtain the tubes at a less cost than required by Messrs. Russell, upon their first arrival in this country, about a year since, the unusual facilities possessed at the Crown Works secured their selection, owing to their being able to offer considerably more favourable terms than others.

The submarine boat which these tubes are destined for is of such dimensions that it is estimated that 200 tons of iron and steel will be used in its construction. The cost will, it is calculated, reach 175,000 silver roubles, or 27,000£.; and the expenditure of this amount has been authorised by the Emperor. Each vessel is to have engines worked by compressed air, and to have a very strong beak, with provision for attaching large cylinders, charged with powder, to the bottoms of vessels, to be fired by electricity. The parties navigating the vessel will see what they are doing by means of "bulls'-eyes," and they will be able to regulate the depth at which they swim, generally keeping quite close to the surface.

COAL MINING IN FRANCE.

Attention has recently been called under this head to the formation by several engineers and coal workers in the mines of the Nord and Mons of an important society for the discovery of coal mines in the Centre of France. With the exception of the North of the Empire, which, since 1847, has been the theatre of sustained researches, the remainder of the French territory—that is, the centre, south and west—has given rise to only a small number of workings. The absence of means of transport, so indispensable to heavy products like coal, has been one of the causes of the small impulse given to the discovery and putting in working of mineral bearings. But since 1852 a network of railways, which will go on multiplying its affluents, has been created, and in a few years its more and more numerous arteries will cover the French soil, uniting centres of consumption to places of production. The development of the demand for mineral combustible, favoured by economic facilities of transport, and the industrial growth of the nation, acquires every year a constantly increasing importance; and, basing the argument upon the remarkable progress which appears in the coal consumption of France from 1844, it will be seen clearly enough that the creation of new mines has become indispensable in a country which every year has to pay foreign nations 4,000,000£. for coal, the consumption of which has doubled since 1850, and which will, in all probability, double itself again in the next 15 years. England, Belgium, and Prussia are, of course, less favourably situated naturally for the sale of their coal on French territory than collieries created in the interior of France, which would have no Customs duties to support, and which would also have to sustain less transport rates, an important condition in connection with heavy goods. Of all branches of industry there is, then, perhaps scarcely any one which offers finer probabilities of great profits than the exploration of mines, since the consumption of coal products is almost always assured, while the soil, scarcely touched in many cases, still reveals numerous bearings. Mining discoveries, or explorations for coal, and the obtention of concessions to be re-sold to capitalists or credit companies, form a distinct speciality; and if collieries have taken in Prussia a considerable stride—ininitely more considerable than in France, and even than in Belgium—we must attribute this result to these explorations of mines, and to the rational and excellent mode of procedure which creates two distinct specialities—the first of discovery, the second of putting in working. Thus in the interest of France the Government could not too energetically encourage scientific attempts at new discoveries of combustible.

It is to the explorations which brought about the discovery of the coal basin of the Pas-de-Calais that the serious introduction into France of mine-seeking industry is principally due. The importance to France of the operations which were commenced in 1847 on this part of its territory, and which have been actively pushed forward between 1859 and 1862, may be inferred from the fact that the mines of the Pas-de-Calais, put in working by 17 concessions, effected an extraction, in 1863, of 1,100,000 tons, representing a value at the pits' mouths of 600,000£., a production which scarcely existed in 1850. The expenditure which the sinking of nearly 40 shafts, the creation of coal railways, of workmen's houses, &c., had involved, amounted in 1864 to 2,000,000£.; and the Pas-de-Calais has been entirely transformed by this vast development, a new industrial life of the most active character having been communicated to it. A considerable benefit has resulted for the North of France and for the whole nation, which now annually gains the sum of 600,000£., which it would otherwise have to pay to foreign collieries.

As an example of the high profits which mining research yields, we may remark that the explorations made by different associations in the Pas-de-Calais have given very large returns. Thus, explorations which had cost in this department from 1600£. to 2000£., have yielded on their success to the parties interested from 12,000£. to 40,000£., the capital expended having been thus quadrupled, and in some cases decupled, as the following examples will prove:—The discovery of the Meurchin Mines, which cost the exploring society, established for the purpose of investigating this part of the basin, 3200£., yielded 20,000£. The Bruay Mines, upon which the parties exploring expended 2000£., yielded 16,000£. The discovery of the Carvin Mines, which cost the explorers 3200£. in researches, yielded them 36,000£. Tempted by these and other examples which we might cite, some capitalists, as we have observed, have united a portion of their resources for the purpose of exploring the coal wealth of the centre of France, and the result of their efforts is awaited with hope, confidence, and interest, by the French commercial public. Consumption has increased, and is still increasing so rapidly in France, that even if the central departments should prove a second Pas-de-Calais, there will still, doubtless, be a French demand for English coal.

Mr. EVANS: You merely say you can bore a hole, and leave the application of the machinery with others. You can bore for coal and gold as well as water?

Mr. MATHER: The application of the machine will be better known to mining engineers than to ourselves.

Mr. EVANS: Have you any accidents with the apparatus?

Sometimes the cutters get broken, or ground to pieces, when passing through hard rock, but the knives are easily repaired, and are not expensive.

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India Office.

BY ORDER OF THE SECRETARY OF STATE FOR INDIA IN COUNCIL, notice is hereby given that the DIRECTOR-GENERAL OF STORES FOR INDIA will be READY, on or before MONDAY, the 25th instant, to RECEIVE PROPOSALS in writing, sealed up, from such persons as may be willing to supply—
CAKE COPPER.
And that the conditions of the said contract may be had on application at the India Store Office, Cannon-row, Westminster, where the proposals are to be left any time before Two o'clock P.M. of the said 25th inst., after which hour no tender will be received.

GERALD C. TALBOT, Director-General.

Contract for Coal.

SOUTH-EASTERN RAILWAY.—The Directors of the South-Eastern Railway Company are PREPARED TO RECEIVE TENDERS for the SUPPLY of EIGHTY THOUSAND TONS OF COOKING COALS, to be delivered free on board at the port of shipment, or in the ports of Folkestone, Whitstable, and Strood. Forms of tender may be had on application to the company's storekeeper, No. 5, St. Thomas's-street, Borough, London, S.E.; and sealed tenders to be sent in or delivered to the undersigned. Company's Offices, London Bridge, July 21, 1864.

THE ISLE OF MAN SLATE QUARRY AND GOLD MINING COMPANY (LIMITED).
Incorporated under the Companies Act, 1862, which limits the liability of each shareholder to the amount of his shares.
Capital £160,000, in 160,000 shares of £1 each.
Deposit on application 2s. 6d. per share, and 2s. 6d. on allotment.
No call to exceed 2s. 6d. per share, and an interval of not less than six months between each call.

A less number than 100 shares will not be allotted.

DIRECTORS.

Capt. R. J. MARSH, R.N., Cottage Mona, Ramsey—CHAIRMAN.
Capt. EWEN CAMERON, Glenfaba House, Peel.
SAMUEL BROADBENT, Esq., Bibalos, Onchan, near Douglas.
JOSEPH HIGGINS, Esq., Peveril-terrace, Peel.
LESLIE LOCKHART, Esq., H.M. Customs, Peel.
Capt. G. RUSSELL, 103, Albany-street, Regent's-park, London.
JOHN MORGAN, Esq., Wainham Lodge, Shrewsbury.
(With power to add to their number.)

MANAGING DIRECTOR.

Henry Johnson, Esq., Norfolk House, St. John's, Isle of Man.

BANKERS.

The North and South Wales Bank, Liverpool.

The National Provincial Bank of England, Shrewsbury.

SOLICITOR AND SECRETARY—C. HICKS, Esq., Shrewsbury.

REGISTERED OFFICE,—MARKET CHAMBERS, SHREWSBURY.

ABRIDGED PROSPECTUS.

This company has been established for the purpose of acquiring and working a most extensive and valuable mineral property, called the Glenrashen and Daley slate and Slab Quarries, situated in the parish of Patrick, in the southern district of the Isle of Man.

The property on which the quarries are opened consists of 6906 acres, nearly the whole of which is proved to be composed of slate rock, equal in quality to any produced from the best quarries in Wales.

This immense property, which it is believed is the largest slate sett in the kingdom, and likely to become one of the most valuable, is held under a lease from the Crown for the term of 21 years, at a reduced royalty of 1-16th, of which term 1½ years are unexpired.

A large sum of money has been spent in opening out and proving the value of their property, not only at the principal quarries at Glenrashen, but also on about 20 different parts of the sett, and "these trials have proved" (as stated in the report of Capt. John Francis, of Penrhyn, North Wales, under whose direction and advice these trials were made) "that almost the whole grant of 7000 acres is composed of slate-rock, and capable of having from eight to ten different quarries opened upon it."

The machinery and plant are very valuable, consisting of water-wheels, sawing mills and cutting machines, tramways, dressing sheds, offices, smiths and carpenters' shops, machine house, and other buildings; and there are several cottages erected, with a dining room and other conveniences for the accommodation of the quarrymen.

The set has been inspected by Capt. John Francis, as before stated, and by Mr. W. R. Williams, of Dolgellau, mining engineer, Capt. Thomas and Robert Williams, of Coddington, Denbighshire, and several other practical men, all of whom speak thereof in the highest terms.

The colour of the slate is a fine dark blue, the grain close and compact, the texture good, the lamination fine and silky, and the cleavage very good and straight.

There is also a very promising vein of green slate, which Capt. Francis recommends should be proved by driving a level into the rock, and if it turns out as well as anticipated will prove a very good green quarry.

In addition to the slate there are several veins or reefs of auriferous quartz traversing a portion of the sett, near to the Foxdale district, which it is believed will prove a valuable acquisition to the company. Portions of the quartz have been assayed by Messrs. Johnson and Sons, of London, Mr. Samuelson, of Liverpool, and other public assayers, with results varying from 1 oz. 2 dwts. 20 grs. to 5 dwts. of fine gold to the ton of quartz, and from the report of Mr. W. R. Williams there is every reason to expect more profitable results.

The quarries are about three miles from the shipping port of Peel, but when the projected railway from Douglas to Peel is completed they will be within a mile and a half of the intended station at Kirkpatrick, to connect them with which a loop-line will doubtless soon be formed.

Only £30,000 of the capital remains to be allotted.

Specimens of the slate may be seen, and prospectuses and forms of application for shares obtained at the offices of Messrs. LITTLEDALE, RIDLEY, and BARDWELL, solicitors, Brown's-buildings, Liverpool; or at the registered office, where the original reports and map of the quarries may be inspected.

FORM OF APPLICATION FOR SHARES.
To the Directors of the Isle of Man Slate Quarry and Gold Mining Company (Limited).
GENTLEMEN.—Having paid to your bankers the sum of £1, I hereby request that you will allot me shares in the Isle of Man Slate Quarry and Gold Mining Company (Limited), and I hereby agree to accept such shares, or any smaller number that may be allotted to me; to pay the deposit, allotment, and calls thereon, and to become a member of the company; and I authorise you to place my name on the register of members for the shares which may be allotted to me.

I am, Gentlemen,

Name in full.....
Address in full.....
Profession or business (if any).....
Place of business (if any).....

Date.....

T H E N O R T H P O O L M I N E C O M P A N Y.
The following STATEMENT of EXPENDITURE, from NOVEMBER 15th, 1862, to end of JUNE, 1864, was issued yesterday to the shareholders, in anticipation of the general meeting of the proprietary, convened to be held upon the mine on Thursday next at noon:—

EXPENDITURE.

November, 1862.—Purchase of lease..... £ 4,000 0 0

Costs from Nov. 15 to Dec. 20, 1862 .. £ 80 19 9
" Dec. 20 to Jan. 17, 1863 .. 74 16 10
" Jan. 17 to Feb. 1, 1863 .. 58 5 11
" Feb. 21 to March 21, 1863 .. 178 17 7
" March 21 to April 18, 1863 .. 107 0 0
" April 18 to May 16, 1863 .. 133 1 9
" May 16 to June 20, 1863 .. 232 2 1
Discount allowed on call (£1024) .. 51 4 0
Expenses of depuration to the mine .. 40 0 0
Stamped cheque-book .. 0 8 4
Costs from June 20 to July 18, 1863 .. 165 17 7
" July 18 to Aug. 18, 1863 .. 170 16 5
" Aug. 15 to Sept. 19, 1863 .. 153 17 5
" Sept. 19 to Oct. 17, 1863 .. 165 8 4
" Oct. 17 to Nov. 21, 1863 .. 160 14 0
" Nov. 21 to Dec. 19, 1863 .. 237 10 5
" Dec. 19 to Jan. 16, 1864 .. 148 19 6
Purchase of 60-in. steam pumping-engine .. 1795 0 0
Merchants' bills to end of Dec., 1863 .. 765 10 0
Rebate allowed on call (£3200) Aug. 5, 1863 .. 102 16 0 = £ 4,772 16 9

1864.—Costs, from Jan. 15 to Feb. 19 .. 254 3 5
" " March 19 to April 16 .. 297 11 8
" " April 16 to May 21 .. 282 15 10
" " May 21 to June 18 .. 249 18 8
" " June 18 to July .. 417 9 1
Rebate allowed on call (£3200) Jan. 28, 1864 .. 132 7 6 = £ 1,896 4 10

Merchants' bills, January to end of June, 1864:—

Sandys, Vivian, and Co. £ 406 3 9
Thomas Tyack .. 71 19 4
E. Burgess .. 21 18 3
William Vivian .. 8 7 7
John Draper .. 6 13 0
George S. Arnall .. 56 11 4
Camborne Trading Company .. 186 19 11
C. Watt and Co. .. 9 18 0
Joseph James .. 13 19 7
Nancarrow and Tregenza .. 49 4 9
S. Higgs and Son .. 16 16 0
John Condy .. 144 12 7
Kennall Gunpowder Company .. 18 8 0
Harvey and Co. .. 10 2 1
J. W. and J. Gilbert .. 5 5 8
A. Treglown .. 0 16 6
Richard Michell .. 72 9 6
Robert Michell and Son .. 12 1 6
South Gorland Mine .. 4 19 9
Bickford, Smith, and Co. .. 3 18 0
John Earle .. 6 4 0
Wertheimer and Co. .. 24 18 0
A. J. Hall .. 13 9 10 = £ 1,165 16 11

Total £11,834 18 6

June 30.—Balance against the adventurers, 4101 18s. 6d.

CAPITAL.

November, 1863.—Issue of shares .. £4000 0 0
March 28, 1863.—Call of £16 per share .. 1024 0 0

August 5, 1863.—" 10s. per share .. 3200 0 0

" 10s. per share .. 3200 0 0 = £11,424

Balance .. 4101 18

Total £11,834 18 6

ADDENDA.

DR.—Balance of expenditure against the adventurers to end of June, 1864. £ 4,118 6 6
Arrears on second call of 10s. per £100 share, as per cost-book .. 130 0 0

" third .. 586 10 0

Acceptances held by the manager and treasurer, drawn on account of the company, and secured by shares .. 1200 0 0

Total .. £2327 8 6

CR.—Merchants' bills .. £1165 16 11

Balance .. 1161 11 7

Total .. £2327 8 6

Balance due to Mr. R. Tredinnick, manager and treasurer of the company, 1161. 11s. 7d., upon paying all obligations up to the end of June month, and to meet which there are arrears of call 716. 10s., and 1200. bills receivable, to be credited when paid.

M R. GEORGE HENWOOD, MINING ENGINEER,
M LOCHHEAD HOUSE, LOCHWINNOCH, SCOTLAND, OFFERS HIS SERVICES AND ADVICE ON MINES situated in any part of England, Scotland, Wales, Ireland, and Isle of Man, &c. Mr. Henwood's extensive experience in his peculiar department of mining science is well known, and will be exerted to the utmost for the benefit of his clients.

In the Court of the Vice-Warden of the Stannaries.
Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the WEST CRINNIS COPPER MINING COMPANY.—Notice is hereby given, that a PETITION for the WINDING-UP of the ABOVE-NAMED COMPANY by the Court was, on the 30th day of June last, presented to the Vice-Warden of the Stannaries, by William Eaton, a contributor of the said company, and that the said petition is directed to be heard before the Vice-Warden, at the offices of Winslow Jones, Esq., Cathedral-yard, Exeter, on Tuesday, the 26th day of July inst., at Ten o'clock in the forenoon.

Any contributory or creditor of the company may appear at the hearing and oppose the same, provided he has given at least two clear days' notice to the petitioner, his solicitor, or agent, of his intention to do so, such notice to be forthwith forwarded to P. Smith, Esq., secretary of the Vice-Warden, Truro.

Every such contributory or creditor is entitled to a copy of the petition and affidavit verifying the same, from the petitioner or his solicitor, within 24 hours after requiring the same, on payment of the regulated charge per folio.

Affidavits intended to be used at the hearing, in opposition to the petition, must be filed at the Registrar's Office, Truro, on or before the 23rd day of July inst., and notice thereof must at the same time be given to the petitioner, his solicitor, or agent.

HENRY SEWELL STORES, of Truro
(Agent for F. W. Dolman, 39, Jermyn-street, St. James's, London,
Dated Truro, July 15, 1864. Solicitor for the Petitioner).

In the Court of the Vice-Warden of the Stannaries.
Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the NORTH WHEAL VOR MINING COMPANY.—Notice is hereby given, that a PETITION for the WINDING-UP of the ABOVE-NAMED COMPANY by the Court was, on the 29th day of June last, presented to the Vice-Warden of the Stannaries, by Alfred Bayard Sheppard and John Nicholas Payne, contributors and creditors of the said company, and that the said petition is directed to be heard before the Vice-Warden, at the offices of Winslow Jones, Esq., solicitor, Cathedral-yard, Exeter, on Tuesday, the 26th day of July inst., at Ten o'clock in the forenoon.

Any contributory or creditor of the company may appear at the hearing and oppose the same, provided he has given at least two clear days' notice to the petitioner, their solicitor, or agents, of his intention to do so, such notice to be forthwith forwarded to P. Smith, Esq., secretary of the Vice-Warden, Truro.

Every such contributory or creditor is entitled to a copy of the petition and affidavit verifying the same, from the petitioner or their solicitor or agents, within 24 hours after requiring the same, on payment of the regulated charge per folio.

Affidavits intended to be used at the hearing, in opposition to the petition, must be filed at the Registrar's Office, Truro, on or before Saturday, the 23rd day of July inst., and notice thereof must at the same time be given to the petitioner, their solicitor, or agents.

HODGE, HOCKIN, AND MARREACK, Truro
(Agents for S. T. G. Downing, Redruth, Solicitor for the Petitioners).

Dated Truro, July 15, 1864.

In the Court of the Vice-Warden of the Stannaries.
Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the SILVER VALLEY MINING COMPANY.—ALL CREDITORS or CLAIMANTS of the ABOVE-NAMED COMPANY, who have not received notice from the Registrar of the said Court that their claims have been already admitted, are hereby REQUIRED TO COME IN AND PROVE THEIR DEBTS or CLAIMS at the Registrar's Office, Truro, on Tuesday, the 2nd day of August next, at Eleven o'clock in the forenoon, or in default thereof they will be excluded from the benefit of any distribution made before such proof.

And for the purpose of such proof they are either to attend in person, or by their solicitors or competent agents, or (unless such attendance be required by the Registrar's summons), they are to send affidavits of their several debts or claims to the Registrar of the Court at Truro, such affidavits being sworn either before some Commissioner of the said Court, or before any Court, Judge, Justice, or any Commissioner of one of the superior Courts lawfully authorised to take and receive affidavits and affirmations.

WILLIAM MICHELL,
Registrar of the above-named Court, Truro, Cornwall.

Dated the 18th day of July, 1864.

FINAL SALE.

TUESDAY, AUGUST 9, 1864, ELEVEN A.M.

MR. BURGESS is instructed to SELL, BY PUBLIC AUCTION, the whole of the ENGINES and MATERIALS remaining at GREAT WHEAL ALFRED MINE, on Tuesday, August 9, at Eleven A.M., comprising—

65 in. CYLINDER PUMPING ENGINE.

Powerful crusher.

2 capstan ropes, 10 and 12 in.

Capstans, cast-iron centre pieces.

Very powerful punching machine.

Machine for boring workings, &c., with all the belt wheels and shafts complete, with granite stands 2 tons weight.

Excellent screwing machine for steam-steam.

Large vice.

Superior new shaft gig (never used), with conical head, 8 wheels for skip road.

4 old shaft gigs.

11 steam whin kibbles.

2 horse whin ditto.

10 skips, faggoted lever.

Treble faggoted couplings and rings for sundry faggoted iron.

3 in. bucket rods, faggoted loops & cheeks.

Staples and glands, 3 faggoted seat offs, shaft door iron.

New.

2 top blocks and stools for bob, nearly 20 lbs brackets for pulley stands.

IN YARD.

Blast bellows fittings, fall rope.

CLAYTON, SHUTTLEWORTH, AND CO., ENGINEERS.
MANUFACTURERS OF PORTABLE AND FIXED STEAM ENGINES, MACHINERY FOR PUMPING, HOISTING, GRINDING, SAWING, &c., ENGINES FOR STEAM CULTIVATION, SELF MOVING ENGINES FOR COMMON ROADS AND AGRICULTURAL PURPOSES GENERALLY.
STAMP END WORKS, LINCOLN; and
78, LOMBARD STREET, LONDON.
ALSO AT
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Descriptive, illustrated, and priced catalogues free per post.
SPECIAL DRAWINGS WHEN REQUIRED.
THE BEST STEAM THRASHING MACHINERY MADE.

Exhibition Medal, 1862.

WEIGHING MACHINERY
CONSISTING OF
PLATFORM WEIGHING MACHINES AND HIND'S PATENT RAIL AND ROAD
WEIGHBRIDGES, OVERHEAD TRAVELLING WEIGHING CRANES AND CRABS,
RAILWAY WEIGHING TURNABLES, &c.
CRAVES
OF THE WALL, PILLAR, PORTABLE, OR TRAVELLING KINDS; AND CRABS AND
WINCHES FOR STEAM OR HAND POWER, &c. ALSO, TURNTABLES, WATER
COLUMNS, TANKS, AND PUMPING MACHINERY, AND GENERAL RAILWAY
PLANT, MANUFACTURED BY
RICHARD KITCHIN, ENGINEER AND IRONFOUNDER,
SCOTLAND BANK IRONWORKS, WARRINGTON.

Prize Medal Awarded Great Exhibition, 1851, and International Exhibition, 1862.

PATENT SAFETY FUZE WORKS, TUCKINGMILL, CORNWALL.—We beg respectfully to inform the public that since the decease of the late Mr. THOMAS DAVEY this firm has consisted of JOHN SOLOMON BICKFORD, GEORGE SMITH, FRANCIS PRYOR, SIMON DAVEY, and WILLIAM BICKFORD SMITH. It is requested that all letters may be addressed, and all cheques and drafts made payable to BICKFORD, SMITH, AND CO.

THE UNITY PATENT SAFETY FUSE COMPANY SCORRIER, CORNWALL, SOLICIT ORDERS for the DIFFERENT KINDS of SAFETY FUSE which they are PREPARED to SUPPLY, of SUPERIOR QUALITY, and of ANY LENGTH.

MESSRS. KNOWLES AND BUXTON, CHESTERFIELD. MANUFACTURERS OF PATENT TUBULAR TUYERES.



The PATENT TUBULAR TUYERE possesses GREAT ADVANTAGES over the ORDINARY TUYERES, both for its DURABILITY and EASY WORKING. A current of cold water going direct to the nozzle prevents their destruction, however much they may be exposed to the fire.

Repair them at half the first cost, making them equal in size to new ones, all parts returning them carriage paid.

No. 1 tuyere, 16 in. long	28s. each.
No. 2 " 18 "	32s. "
No. 3 " 20 "	36s. "
No. 4 " 22 "	40s. "
No. 5 " 24 "	44s. "

Delivered at Chesterfield station. Terms, net cash quarterly.

HOMAS TURTON AND SONS. MANUFACTURERS OF

CAST STEEL for PUNCHES, TAPS, and DIES, TURNING TOOLS, CHISELS, &c.

CAST STEEL PISTON RODS, CRANK PINS, CONNECTING RODS, STRAIGHT and CRANK AXLES, SHAFTS, and

FORGINGS of EVERY DESCRIPTION.

DOUBBLE SHEAR STEEL, FILES MARKED T. TURTON, SPRING STEEL, EDGE TOOLS MARKED WM. GREAVES & SON GERMAN STEEL.

Locomotive Engine, Railway Carriage and Wagon Springs and Buffers.

SHEAF WORKS AND SPRING WORKS, SHEFFIELD. London Warehouse, 25, QUEEN STREET, CANNON STREET, CITY, E.C. where the largest stock in the world may be selected from.

PUBLIC TEST OF WIRE-ROPE.—The SUPERIOR QUALITY of GARNOCK, BIBBY, AND CO.'S WIRE-ROPE IS FULLY PROVED by a RIVAL MANUFACTURER at the LIVERPOOL PUBLIC TESTING MACHINE, on the 29th of October, 1860, on which occasion GARNOCK, BIBBY, AND CO.'S ropes were found to be the STRONGEST of all the TWELVE SAMPLES from different makers tested, as reported in the papers of the day. For example:—

(Certified by Mr. William Macdonald, superintendent.) Garnock, Bibby, Corresponding sizes from Co. and other manufacturers.

Sizes. Tons c. Tons c. Tons c.

3½ in. 18 5* 16 10 11 10

2½ in. 18 15* 17 15 5 0

Remaining sizes with similar results.

* Samples taken promiscuously from stock by a rival manufacturer's agent.

GARNOCK, BIBBY, AND CO., SWAN HEMP AND WIRE ROPE MANUFACTURERS, LIVERPOOL.

FLAT and ROUND STEEL and IRON WIRE ROPES FOR MINES, &c., of SUPERIOR QUALITY.

BASTIER'S PATENT CHAIN PUMP, APPARATUS FOR RAISING WATER ECONOMICALLY, ESPECIALLY APPLICABLE TO ALL KINDS OF MINES, DRAINAGE, WELLS, MARINE, &c.

J. U. BASTIER begs to call the attention of proprietors of mines, engineers, architects, and the public in general, to his new pump, the cheapest and most efficient ever produced to public notice. The principle of this new pump is simple and effective, and so arranged that accidental breakage is impossible. It occupies less space than any other kind of pump in use, does not interfere with the working of the shafts, admits lightness with a degree of durability almost imperishable. By means of this simple machine water can be raised economically from wells of any depth; it can be driven either by steam-engine or any other motive power, by quick or slow motion. The following statement presents some of the results obtained by this hydraulic machine, fully demonstrated by use:—

It utilizes from 90 to 92 per cent. of the motive power.

Its price and expense of installation is 75 per cent. less than the usual pump—em.

It occupies a very small space.

It raises water from any depth with the same facility and economy.

It raises with the water, and without the slightest injury to the apparatus, sand, wood, stone, and every object of a smaller diameter than its tube.

It is easily removed, and requires no cleaning or attention.

A mining pump can be seen daily at work, at Wheal Concord Mine, South Sydenham, near Tavistock, and a shipping pump at Woodside Graving Dock Company (Adelphi), Birkenhead, near Liverpool.

J. U. BASTIER, sole manufacturer, will CONTRACT to ERECT his PATENT PUMP HIS OWN EXPENSE, and will GUARANTEE IT FOR ONE YEAR, or will GRANT LICENSES to manufacturers, mining proprietors, and others, for the USE of his INVENTION.

OFFICES, 47, WARREN STREET, FITZROY SQUARE.

London, March 21, 1860. Hours from Ten till Four. J. U. BASTIER, C.E.

THE BANKING, MINING, AND JOINT-STOCK COMPANIES REVIEW, A JOURNAL OF COMMERCE, TRADE AND MANUFACTURE, SCIENCE AND THE ARTS. Published every Wednesday. Subscription, £1 1s. annually. Price 6d. stamped.

RAILWAYS AND MINES. Capitalists who seek safe and profitable investments, free from risk, should act only upon the soundest information. The market prices for the day are for the most part given to the immediate supply and demand, and the operations of speculators, without reference to the true side merit of the property. Railways depend upon the traffic, expenses, the creation of new shares, the state of the money market as affecting the value of debentures, and other considerations founded on data to which those only can have who give special attention to the subject. Mines afford a wider range for profit than other public securities. The best are free from debt, have large reserves, and pay dividends monthly varying from £15 to £25 per cent. parum. Instances frequently occur when young mines rising in value 400 or 500 per cent. But this class of security, which devotes special attention to railways and mines, afford every information to miners in mining pursuits justifies us in offering our advice to the uninitiated in selecting for investment; we will, therefore, forward, upon receipt of Post-office for £1, the names of six dividend and six progressive companies that will, in our view, well repay capitals for money employed.

J. U. BASTIER AND CO., STOCKS and SHAREBROKERS, and DEALERS IN BRITISH MINING SHARES, 78, LOMBARD STREET, E.C.

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THE MINING SHARE LIST

BRITISH DIVIDEND MINES.

Shares.	Mines.	Paid.	Last Pr.	Business.	Dividends Per Share.	Last paid.
1200 Alderley Edge (cop.), Cheshire [L.]	10 0 0 ..	..	10 8 0 ..	9 15 0 ..	April, 1864	
4000 Badior United (copper), Tavistock	2 6 8 ..	..	214 2% ..	13 9 0 ..	0 2 6 ..	July, 1864
1248 Boscastle (tin, copper), St. Just	6 15 0 ..	..	1 5 0 ..	5 0 ..	May, 1864	
200 Botallack (tin, copper), St. Just	91 5 0 ..	..	477 15 0 ..	3 0 0 ..	May, 1864	
5000 Bonllynock (lead), Cardigan [L. £2]	2 7 5 ..	..	0 19 0 ..	0 2 6 ..	April, 1864	
916 Cargill (silver-lead), Newlyn	15 8 7 ..	35 ..	40 42 ..	7 15 0 ..	0 10 0 ..	June, 1864
1800 Carr Brae (copper, tin), Illogan	15 0 0 ..	..	230 10 0 ..	2 0 0 ..	June, 1864	
2900 Clifford Amalgamated (cop.), Gwen	30 0 0 ..	34 ..	33 34 ..	31 18 6 ..	0 10 0 ..	June, 1864
12000 Copper Miners of England	25 0 0 ..	..	714 per cent.	Half-year.		
40000 Ditto ditto (stock)	100 0 0 ..	..	1 per cent.	Half-year.		
867 Cwm Erbin (lead) Cardiganshire [L.]	7 10 0 ..	..	12 3 0 ..	0 15 0 ..	July, 1864	
128 Cwnynt with (lead), Cardiganshire	60 0 0 ..	..	263 10 0 ..	8 0 0 ..	June, 1864	
280 Derwent Mines (sl.-lead), Durham	300 0 0 ..	..	152 0 0 ..	5 0 0 ..	June, 1864	
1024 Devon Gt. Con. (cop.), Tavistock [S.E.]	128 17 6 ..	..	923 0 0 ..	10 0 ..	July, 1864	
358 Dolcoath (copper, tin), Camborne*	4600 Bedford Cons. (cop.), Tavistock	2 1 0 ..	763 10 0 ..	7 0 0 ..	June, 1864	
612 East Bassett (cop.), Redruth [S.E.]	29 10 0 ..	67 ..	114 15 0 ..	6 18 0 ..	May, 1864	
614 East Cadron (copper), St. Cleer [S.E.]	2 14 6 ..	284 2% ..	121 0 0 ..	0 0 0 ..	May, 1864	
300 East Dartmoor (lead), Cardiganshire	82 0 0 ..	..	11 5 0 ..	1 0 0 ..	July, 1864	
128 East Pool (tin, copper), Pool, Illogan	24 5 0 ..	..	369 10 0 ..	2 0 0 ..	June, 1864	
1906 East Wheal Lovell (tin), Wendron	2 12 6 ..	15 ..	10 0 0 ..	0 4 0 ..	June, 1864	
2800 Foxdale (lead) Isle of Man [L.]	25 0 0 ..	..	10 0 0 ..	0 10 0 ..	May, 1864	
5000 Frank Mills (lead), Christow	3 18 5 ..	..	64 0 0 ..	1 0 0 ..	June, 1864	
12500 Great Laxey (lead), Isle of Man [L.]	4 0 0 ..	17 ..	1 4 0 ..	0 4 0 ..	May, 1864	
5000 Great Wheal Fortune (tin), Breage	18 6 0 ..	134 12% ..	5 15 0 ..	0 10 0 ..	Nov., 1864	
5908 Great Wh. Vor. (tin, ep.), Helston [S.E.]	40 0 0 ..	30 ..	19 0 0 ..	0 12 0 ..	June, 1864	
119 Great Worth (tin), Germoe	100 0 0 ..	..	10 0 0 ..	0 0 0 ..	June, 1864	
1024 Herodsfoot (id.), near Liskeard [S.E.]	8 10 0 ..	..	28 0 0 ..	1 15 0 ..	Feb., 1864	
400 Liebhau (lead), Cardiganshire, Wales	18 10 0 ..	..	421 10 0 ..	3 0 0 ..	June, 1864	
8000 Marks Valley (copper), Caradon	4 10 0 ..	5 ..	5 5 1% ..	2 14 0 ..	May, 1864	
1800 Miners Mining Co. [L.], Wrexham	26 0 0 ..	..	145 10 0 ..	0 10 0 ..	May, 1864	
20000 Mining Co. of Ireland (cop., lead, coal)	7 0 0 ..	..	16 19 0 ..	0 12 3 ..	Jan., 1864	
40000 Mwyndy (iron ore) [L. £2] [S.E.]	2 10 0 ..	..	0 4 0 ..	2 0 0 ..	April, 1864	
250 North Minty (mines) (lead), Montgomery	20 0 0 ..	..	7 0 0 ..	0 0 0 ..	June, 1864	
6000 New Birch Tor and Vitifer Cons. (tin)	1 8 6 ..	..	2 16 2% ..	0 9 6 0 ..	July, 1864	
5326 North Treskerby (copper), St. Agnes	1 9 0 ..	2% ..	0 13 0 ..	2 6 0 ..	Feb., 1864	
6400 Par Consols (cop.), St. Blazey [S.E.]	1 2 6 ..	..	38 19 0 ..	2 6 0 ..	Mar., 1864	
200 Parys Mines (copper), Anglesey [S.E.]	50 0 0 ..	..	112 10 0 ..	10 0 ..	July, 1864	
1772 Polberro (tin), St. Agnes	15 0 0 ..	..	7 19 0 ..	0 10 0 ..	Nov., 1863	
512 Polbreen (tin), St. Agnes	8 0 0 ..	..	1 0 0 ..	0 0 0 ..	July, 1863	
1123 Providence (tin), Uny Lelant [S.E.]	10 6 7 ..	40 ..	73 5 0 ..	1 0 0 ..	May, 1864	
6000 Rosewall Hill and Ransom United	2 16 0 ..	3% ..	0 10 0 ..	1 6 0 ..	June, 1863	
612 South Cadron (cop.), St. Cleer [S.E.]	1 5 0 ..	470 ..	438 10 0 ..	0 0 0 ..	April, 1864	
612 South Tolgus (cop.), Redruth, Cornwall*	8 0 0 ..	..	74 10 0 ..	1 0 0 ..	May, 1863	
498 S. Wh. Frances (cop.), Illogan [S.E.]	18 19 0 ..	45 ..	370 13 6 ..	1 0 0 ..	Nov., 1863	
4000 S. Wh. Day United (tin), Redruth	14 0 0 ..	..	0 5 0 ..	0 5 0 ..	Mar., 1864	
940 St. Ives Consols (tin), St. Ives	8 0 0 ..	..	490 10 0 ..	0 10 0 ..	May, 1864	
6000 Thicraft (cop., tin), Pool, Illogan [S.E.]	9 0 0 ..	17% ..	15 1 0 ..	0 12 2 ..	June, 1864	
4200 Vixen and Clough (copper) [L. £2]	4 0 0 ..	..	6 2 6 ..	1 0 0 ..	Mar., 1864	
6000 West Bassett (copper), Illogan [S.E.]	1 10 0 ..	..	25 13 0 ..	0 5 0 ..	July, 1864	
3000 Wh. Chiverton (cop.), Perranzabuloe [S.E.]	—	67% ..	2 5 0 ..	0 15 0 ..	April, 1864	
512 South Tolgus (cop.), Redruth, Cornwall*	8 0 0 ..	..	51 0 0 ..	1 10 0 ..	July, 1864	
286 West Damself (copper), Gwennap	38 10 0 ..	..	10 0 0 ..	1 0 0 ..	May, 1863	
400 W. Wh. Seton (cop.), Camborne [L. £2]	47 10 0 ..	215 ..	210 220 ..	409 0 0 ..	0 0 0 ..	June, 1864
512 West Bassett (copper), Illogan [S.E.]	5 2 6 ..	..	600 0 0 ..	1 10 0 ..	June, 1864	
1000 Wheal Basset and Grylls (tin)	7 0 0 ..	..	3 0 0 ..	0 10 0 ..	Oct., 1864	
512 Wheal Jane (silver-lead), Kea	18 10 0 ..	..	14 10 0 ..	0 10 0 ..	May, 1864	
4295 Wheal Kitty (tin), St. Agnes	5 4 6 ..	..	1 13 0 ..	0 5 0 ..	April, 1864	
1024 Wheal Kitty (tin), Uny Lelant [S.E.]	2 0 6 ..	12 ..	10 2 6 ..	7 6 0 ..	July, 1864	
896 Wh. Margaret (tin), Uny Lelant [S.E.]	9 17 6 ..	9 ..	76 5 0 ..	1 0 0 ..	May, 1863	
1024 Wh. Mary Ann (id.), Menheniot [S.E.]	8 0 0 ..	15 ..	68 7 0 ..	1 0 0 ..	June, 1864	
100 Wheal Mary (tin), Lelant	36 2 6 ..	..	288 5 0 ..	4 0 0 ..	Mar., 1864	
80 Wheal Owles (tin), St. Just, Cornwall	70 0 ..	..	343 8 0 ..	5 0 0 ..	May, 1864	
396 Wheal Seton (tin, copper), Camborne	58 10 0 ..	227% ..	174 15 0 ..	4 0 0 ..	June, 1864	
1040 Wh. Trelewys (sl.-id.), Liskeard [S.E.]	5 17 0 ..	20 ..	49 12 6 ..	6 0 0 ..	May, 1864	
2044 Wheal Tremayne (tin), Gwinear	6 11 3 ..	..	6 1 3 0 ..	0 5 0 ..	Nov., 1863	
7060 Wicklow (copper) [L.], Wicklow	2 10 0 ..	..	14 11 0 ..	0 6 0 ..	April, 1864	

[* Dividends paid every two months. † Dividends paid every three months.]

BRITISH MINES WITH DIVIDENDS IN ABEYANCE.

240 Rosecan (tin), St. Just	20 10 0 ..	..	36 10 0 ..	1 0 0 ..	Mar. - Mar. 1862
5000 Chiverton (lead), Perranzabuloe [S.E.]	5 0 0 ..	8% ..	85 0 0 ..	2 0 0 ..	July, 1862
256 Condor (cop.), Camborne	45 0 0 ..	..	25 0 0 ..	0 10 0 ..	June, 1862
2450 Cook's Kitchen (copper), Illogan	17 15 0 ..	20 ..	18% 17% ..	1 7 0 ..	May, 1862
1024 Copper Hill (copper), Redruth	12 0 0 ..	12 ..	2 7 6 ..	—	Sept., 1862
1055 Croddack Moor (copper), St. Cleer	8 0 0 ..	..	7 12 0 ..	0 4 0 ..	July, 1862
4078 Devon and Cornwall (cop.), Tavistock	6 6 2 ..	..	0 10 0 ..	2 6 0 ..	Feb., 1862
3000 Dyngwyn (lead), Wales	12 6 6 ..	..	0 17 6 ..	2 6 0 ..	Jan., 1863
940 Fowey Consols (copper), Tintagel	4 0 0 ..	..	41 9 12 ..	2 6 0 ..	June, 1860
6000 Great South Tolgus, Redruth	0 14 6 ..	3 ..	7 18 6 ..	0 5 0 ..	Dec., 1861
10240 Gunnis Lake (Clitter's Adit)	0 2 0 ..	..	0 3 0 ..	1 0 0 ..	Mar., 1862
160 Levant (copper, tin), St. Just	2 10 0 ..	..	1091 0 0 ..	5 0 0 ..	May, 1860
640 Mount Pleasant (lead), Mold	4 0 0 ..	..	18 18 0 ..	1 0 0 ..	Aug., 1862
5000 Orsadd (lead), Flintshire	0 8 0 ..	..	0 10 4 0 ..	0 8 0 ..	Mar., 1863
5000 South Mouth (lead), Christow	1 10 0 ..	..	0 5 0 0 ..	0 5 0 ..	Deo., 1863
280 St. Ives Consols (tin), St. Ives	32 17 9 ..	..	9 15 0 0 ..	1 0 0 ..	June, 1863
872 Trelyon Consols (tin), St. Ives	12 10 0 ..	10 ..	7 0 0 0 ..	10 0 ..	Sept., 1860
1000 Trumpet Consols (tin), near Heiston	11 10 0 ..	10 ..	11 0 0 0 ..	2 0 0 ..	Mar., 1863
12000 Two Apostles Amal					